CANYON COUNTY DEVELOPMENT SERVICES DEPARTMENT
111 North 11th Ave., Ste. 140, Caldwell, ID 83605 | Office: 208-454-7458
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AGENCY NOTIFICATION – RESPONSE REQUESTED

Case No.:	OR2022-0010/CR2022-0031	Hearing Date:	Tentative April 2023
Address:	0 Hwy 55, Caldwell; southeast of Hwy 55 and Churruca Ln intersection	Hearing Body:	Planning and Zoning Commission
Applicant:	William and Gena Werhane	Transmission Date:	2/7/23
Planner:	Jenna Petroll, Planner II	Phone :	208-454-6632

RESPONSE DEADLINE: March 20, 2023

Your agency is hereby notified that Canyon County Development Services has accepted an application:

Case OR2022-0010 & CR2022-0031: The applicant, William and Gena Werhane, is requesting a comprehensive plan map amendment (Case #OR2022-0010) of Parcel R33590012B to amend the future land use designation from "Agriculture" to "Commercial". The request also includes a conditional rezone with a development agreement (Case #CR2022-0031) to amend the County zoning map from an "A" (Agricultural) Zone to a "CR-C-2" (Conditional Rezone – Service Commercial) Zone. The property is located at 0 Hwy 55, Caldwell, southeast of the Hwy 55/Sunny Slope Rd and Churruca Ln intersection-; also referenced as a portion of Section 34, Township 3N, Range 4W; Canyon County, Idaho.

The property is not located within a Floodplain and/or Floodway. Flood Hazard Zone: X

Your agency response is critical to the evaluation of this proposal. A copy of the letter of intent and other applicable documents are enclosed for your review. If you need further information please send an email request or phone call to the planner of record listed below. Your response will be forwarded to the hearing body for consideration and will be incorporated into the staff review and report.

Please reference the Case Number listed above in responses and/or correspondence regarding this case. You may respond in the following formats:

- Mail: 111 North 11th Ave., Ste. 310, Caldwell, ID 83605
- Email: jenna.petroll@canyoncounty.id.gov

At a minimum, please address the following questions specific to your agency listed below and any additional concerns regarding the requested use. Information submitted will be a part of the record as evidence for the Findings of this case:

SOUTHWEST DISTRICT HEALTH DEPARTMENT

- ✓ Will adequate sewer systems be provided to accommodate the use?

HIGHWAY DISTRICTS/ITD

- ✓ Does legal access to the property exist for the requested use?
- ✓ Will there be any undue interference with existing or future traffic patterns created by the requested use?

IRRIGATION DISTRICTS

- ✓ Will adequate irrigation be provided to accommodate said use?
- ✓ Will any of the services provided by the irrigation district be negatively impacted by the requested use or require additional public funding to meet the needs created by the requested use?

IDAHO DEPARTMENT OF WATER RESOURCES

- ✓ Will adequate water be provided to accommodate said use?

SCHOOL FACILITIES

- ✓ Will essential services be provided to accommodate the requested use?
- ✓ Will any school services be negatively impacted by the requested or require additional public funding in order to meet the needs created by the requested use? (For example, what is the school's existing capacity and will it meet the demand of any additional growth created from the requested use?)

POLICE, FIRE, AND EMERGENCY MEDICAL SERVICES

- ✓ Will essential services be provided to accommodate said use?
- ✓ Will services be negatively impacted by such use or require additional public funding in order to meet the needs created by the requested use?
- ✓ What is the estimated response time to the subject property? Is this response time adequate for life safety concerns?

DEPARTMENT OF ENVIORNMENTAL QUALITY

Air Quality

- ✓ Will the use have a negative impact on air quality?

Waste Water & Drinking Water

- ✓ Will essential services accommodate said use?

Surface Water

- ✓ Will the use impact any nearby surface water sources?

Hazardous Water & Ground Water Contamination

- ✓ Will the use negatively impact ground water?
- ✓ Is there a hazardous waste concern?

If you have questions regarding the application and/or materials received, you may contact the planner assigned to the case, Jenna Petroll at jenna.petroll@canyoncounty.id.gov or by phone at (208) 454-6632.

Idaho Code 37-6509(a) requires notice of a public hearing to be sent to political subdivisions of the state that provided services within the planning jurisdiction at least fifteen (15) days prior to the public hearing.

B. Detailed Letter

1. Request Description:

This request is to place into the Comprehensive Planning Process a map change from agricultural to commercial. Specifically parcel # R-33590012B, i.e. The Parcel.

As per Canyon County Planners, both applications, i.e. Comprehensive Plan Amendment & Conditional Rezone can be submitted at the same time. Noting that the amendments' checklists are identical and for the same property. Hopefully this effort will increase effectiveness and efficiency. Therefore, please accept this package to conform to the Comprehensive Plan and Zoning Ordinance.

2. Reasoning:

a. History

Prior to the rebuilding of the Marsing Bridge in 1955, Marsing Road /Hwy 55 was the arterial crossing the Snake River into Marsing – Attachment #1-. Just prior to the crossing is a gas/service station, i.e. Churruca Service, now abandoned. An interesting note here is that just behind (South) of Churruca service was the Marsing POW camp. The camp was constructed in 1942 – 1943, held up to 1500 POWs, that worked the sugar beet fields and orchards until WWII was over. Many locals still have personal and interesting stories. Continuing; when the new Marsing Bridge was completed, the highway was rerouted. Hwy 55 was straightened, heading South straight to the new bridge. Marsing Road was connected to Hwy 55 via a radius approx. 2000 feet North of the Bridge -Attachment #2-. Churruca Lane (.452 miles of Marsing Road) was abandoned by ITD -Attachment #3 - and Churruca Service was isolated, lost business and eventually shut down in the early 1970s. The Parcel was also isolated between Hwy 55 and Marsing Road. The only major use in nearly five decades was to deposit excess fill when Hwy 55 (Sunny Slope Road) was again improved to a four Lane with a center lane about 18 years ago. The deteriorated barb wire, fencing and 'T' posts have been removed from the Parcel and the available irrigation line requires extensive improvements to regain useability.

b. Additional Reasoning

Restating, after the rerouting of Hwy 55 and Marsing Road and abandoning Churruca Lane in the mid 1950s The Parcel was cut off. Considering;

1. Residential? Not realistic as the location is between two major arterials and the traffic count as of 2019 for Hwy 55 was 7000 daily. This count is probably low considering that the count was during the 2019 new Marsing Bridge construction.
2. Manufacturing? Possible, however the size is small and water usage maybe limiting. Power is readily available as per Idaho Power easement across The Parcel.
3. Agricultural? The opportunity was there after the 1955 bridge construction but in five decades agricultural use was not seriously attempted. Because of the fill placement from the Sunny Slope Road improvement -Attachments #4- small size, irrigation improvement requirements and increasing traffic counts, future Ag use is not realistic.
4. Commercial? Realistic and the logical alternative.

The Parcel is located adjacent to Marsing, Owhyee County's second largest town, ~1200 population. There is rapid growth on both sides of the Snake River in the form of small to medium single family developments. Considering that Homedale with a population of ~2500 is adjacent to ~15 acres of commercial use across the Snake River (Hwy 95, Canyon County) with a vehicle traffic count of 8500 daily and at Walter's Ferry (Hwy 45) with ~10 acres of commercial zone in Canyon County with a traffic count of 1850, it would seem logical that the Marsing Crossing would be placed into a similar comprehensive mapping plan, i.e commercial -Attachments #5-.

The recognized non-agricultural use was further evident because it was sold in 2006 by Betty L. Kent Family Trust to Standley Land and Investments, LLC, then again sold in 2014 to Brockman Ama Lee Trust and finally to Werhane Family Living Trust in 2020 - Attachments #6-. No attempt was attempted to place the Parcel back into agricultural use.

As evidence from the still existing Churruca Service, now abandoned, there is historical usage as commercial -Attachment #7-.

Initial investigation and parcel preparation indicates that The Parcel is adaptable for commercial use: Phase I Environmental Site Assessment -Attachment #8-, Geotechnical Investigation -Attachment #9.

Conference with SWDH as per water and affluent treatment indicates that with proper design and certification there would be unrestrictive effects to the environment.

Meeting with District 3, IDT for design and location for northbound 'slip/off ramp' is possible and logical for access to The Parcel for north bound traffic -Attachments # 10-.

I.C. Site Plan

The mapping of The Parcel from Agricultural to Commercial would be the only change to the Site Plan.

I.D. Neighborhood Meeting Sign Up Sheet

1. Copy of letter and signup sheets, attached
2. List of property owners that the letter was sent to, attached

I.E. Warranty Deed and Certificate of Trust, attached

I.E. Fees, receipts attached

DEVELOPMENT AGREEMENT FOR PARCEL R33590012B

The intent of this development agreement is to paint the picture of what I see would be a compliment to this region, on this +- 7 acres.

The historical use was Ag, commercial and a POW internment camp prior to 1957. After the Sunny Slope Road (Hwy 55) was rerouted, isolating the parcel and dumping excess material there has been no specific use other than a utility corridor to Owyhee County.

The proposed "C-2" classification with stated restrictions and conditions would provide a transitional option at the entrance of this unique and identified region of Canyon County. Recognizing that the Comprehensive Plan is revised to include an Ag/Tourism option, the recognition of this classification is uniquely suited for this Parcel.

Before CCZO sections 07-06-03 and 07 are addressed, the following zoning classifications would ONLY be allowed as per current land use matrix, C-2 zoning, i.e. restrictions:

- Equipment rentals, Farm supply sales, Ministorage and RV storage facility (only with proper screening), RV park with appropriate landscaping, Retail stores, banks, microbrewery and restaurants (to include landscaping and screening), Vehicle fueling station with convenient store.

In addition to this restricted list of uses, the following condition would be mandated in the future development:

Incorporate a historical theme into their project, to be developed and designed by the developer. The 'theme' can be a specific orientation, eg Lizard Butte, POW Internment Camp, Snake River Corridor, Agricultural significance of area (soil, irrigation, wine production), Oregon Trail or an overview of all the aspects of the region. To sustain the historical significance, future development of this relatively small area would include a specific display and commentary. The display would include an outside plaque or signage pertaining to the subject along with interior pictures and displays. For an example, if a microbrewery is planned, an obvious IPA maybe LIZARD BUTTE IPA. This would segue into demonstrating the geographical significance of Lizard Butte during the mid 1800's.

The only thrust of this process is to emphasis the uniqueness of this area. The residences and the new arrivals recognize these special attributes and wish them to continue. Any new 'business' should emphasize this uniqueness and usher the present community and travelers into the region.

Addressing the CCZO concerns:

CCZO Section 07-06-03

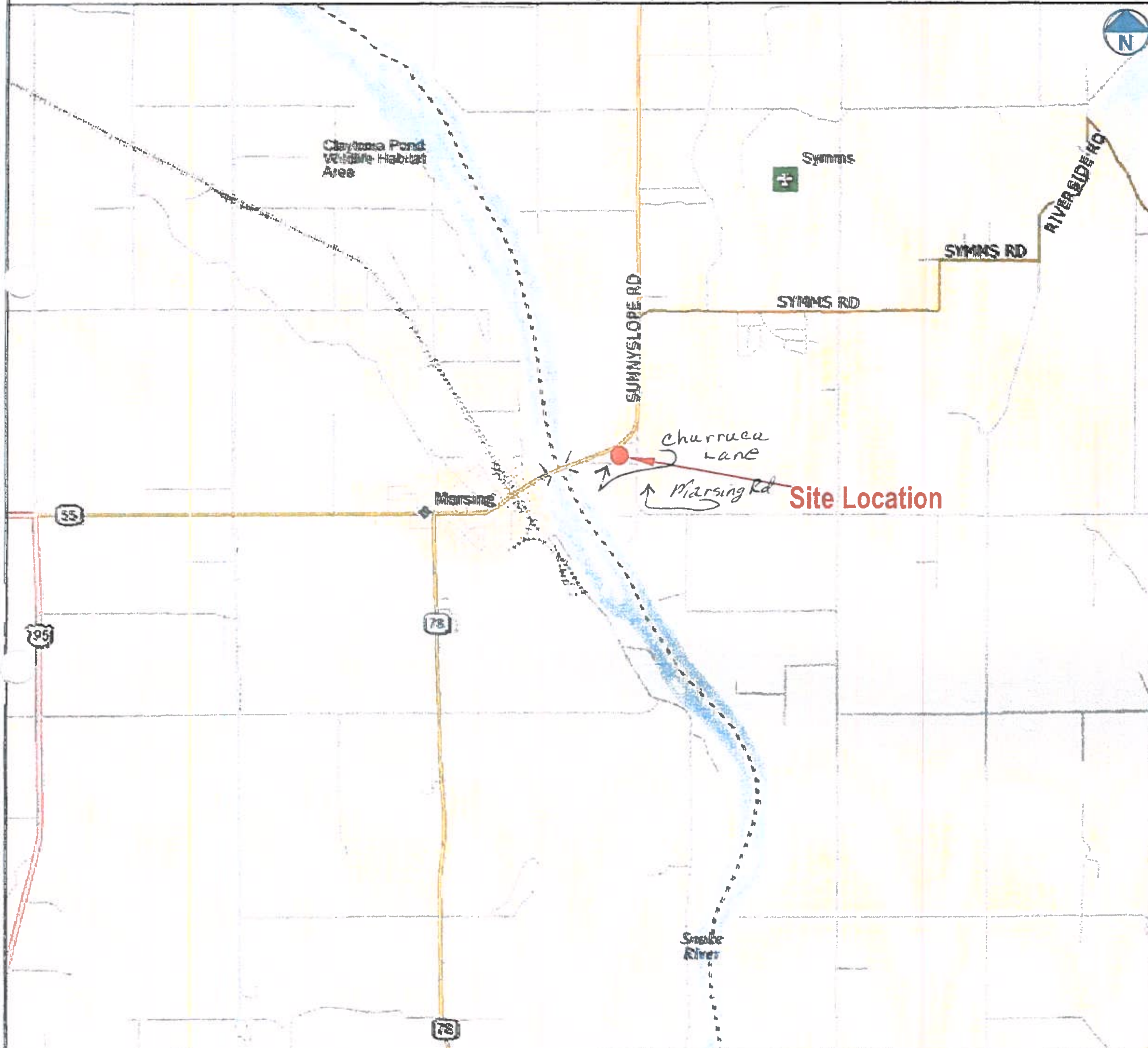
The type of and supportive business, as outlined above will conform with the comprehensive plan as a transitional use at the entrance into the Ag/Tourism classification. Historically this

Parcel was recognized as having a commercial use, i.e. Churruca Garage, a crossroad location. The compatible recognition is enhanced by emphasizing the historical and geographical qualities of the area during the development of the Parcel. The development trends are obvious, not only in the Sunny Slope Area but in the whole State of Idaho. Services will be developed for the increasing population. Is it going to turn into Eagle Road or retain the historical and environmental aspects of years gone by? Public services will be impacted. One obvious impact is traffic flow. With the engineering advancements and options that are available it is only a matter of designing and constructing the right ingress and egress approaches. Anticipating this, a joint access agreement among the property owners will be recorded to enhance the engineering options available. The current use and design of ingress and egress can be observed on Hwy 95 and 45. It is evident that the design of Marsing Road and Hwy 55 merger was lacking. There are traffic issues that need to be addressed, with or without the development of this Parcel. As per the original submission, documentation of environmental (stage 1) issues and initial meeting with District Health addressed mitigation measures with water and disposal concerns. There is enough area to treat waste water and obtain potable water on site. There is an irrigation source at the parcel and will be developed as per a water box prior to actual development.

I realize that a revised – new comprehensive plan has been developed for this unique area in Idaho and Canyon County. We live and work here and the vision that I attempted to layout is a gateway or transitional opportunity when crossing the Snake River into Canyon County, Idaho's premier agricultural region. The ultimate result is to compliment and contribute to the uniqueness of this region.

Vicinity Map

Figure 1



MAP NOTES:

- Delorme Street Atlas
- Not to Scale

LEGEND

Approximate Site Location (red dot)

Proposed Commercial Development
SEC of Highway 55 & Churruca Lane
Caldwell, ID

Modified from DeLorme by: JBS
December 21, 2020
Drawing: B202034g

ATLAS
2791 S. Victory View Way
Boise, ID 83709
Phone: (208) 376-47..
Fax: (208) 32..
Web: ...

LAND USE WORKSHEET

CANYON COUNTY DEVELOPMENT SERVICES DEPARTMENT
111 North 11th Avenue, #140, Caldwell, ID 83605
www.canyonco.org/dsd.aspx Phone: 208-454-7458 Fax: 208-454-6633

LAND USE WORKSHEET

Required for Conditional Use Permit, Comprehensive Plan and Zoning Ordinance Amendment Applications

PLEASE CHECK ALL THAT APPLY TO YOUR REQUEST:

GENERAL INFORMATION

1. DOMESTIC WATER: ☑ Individual Domestic Well ☐ Centralized Public Water System ☐ City

☐ N/A – Explain why this is not applicable: _____

☐ How many Individual Domestic Wells are proposed? _____

2. SEWER (Wastewater) ☑ Individual Septic ☐ Centralized Sewer system

☐ N/A – Explain why this is not applicable: _____

3. IRRIGATION WATER PROVIDED VIA:

☑ Surface ☐ Irrigation Well ☐ None

4. IF IRRIGATED, PROPOSED IRRIGATION:

☐ Pressurized ☑ Gravity

5. ACCESS:

☑ Frontage ☑ Easement * Easement width_____Inst. # _____

* as per joint access Agreement

6. INTERNAL ROADS:

☐ Public ☑ Private Road User's Maintenance Agreement Inst #_____

7. FENCING ☑ Fencing will be provided (Please show location on site plan)

Type: As per specific design Height: _____

8. STORMWATER: ☑ Retained on site ☐ Swales ☐ Ponds ☑ Borrow Ditches

☐ Other: _____

9. SOURCES OF SURFACE WATER ON OR NEARBY PROPERTY: (i.e. creeks, ditches, canals, lake)

None at present time

RESIDENTIAL USES

1. NUMBER OF LOTS REQUESTED:

☐ Residential _____ ☑ Commercial 2 ☐ Industrial _____

☐ Common _____ ☐ Non-Buildable _____

2. FIRE SUPPRESSION:

☑ Water supply source: Marsing City - non potable water source w/in 300' of the Parcel

3. INCLUDED IN YOUR PROPOSED PLAN?

☐ Sidewalks ☐ Curbs ☐ Gutters ☐ Street Lights ☑ None

NON-RESIDENTIAL USES

1. SPECIFIC USE: C-2 with development conditions (agreement)

2. DAYS AND HOURS OF OPERATION: - T.B.D.

☐ Monday _____ to _____

☐ Tuesday _____ to _____

☐ Wednesday _____ to _____

☐ Thursday _____ to _____

☐ Friday _____ to _____

☐ Saturday _____ to _____

☐ Sunday _____ to _____

3. WILL YOU HAVE EMPLOYEES? ☑ Yes If so, how many? T B D ☐ No

4. WILL YOU HAVE A SIGN? ☑ Yes ☐ No ☐ Lighted ☐ Non-Lighted

Height: _____ ft Width: T B D ft. Height above ground: _____ ft

What type of sign: _____ Wall _____ Freestanding _____ Other

5. PARKING AND LOADING: - T.B.D.

How many parking spaces? _____

Is there is a loading or unloading area? _____

ANIMAL CARE RELATED USES

1. **MAXIMUM NUMBER OF ANIMALS:** None Planned

2. **HOW WILL ANIMALS BE HOUSED AT THE LOCATION?** n.a.

☐ Building ☐ Kennel ☐ Individual Housing ☐ Other _____

3. **HOW DO YOU PROPOSE TO MITIGATE NOISE?** n.a.

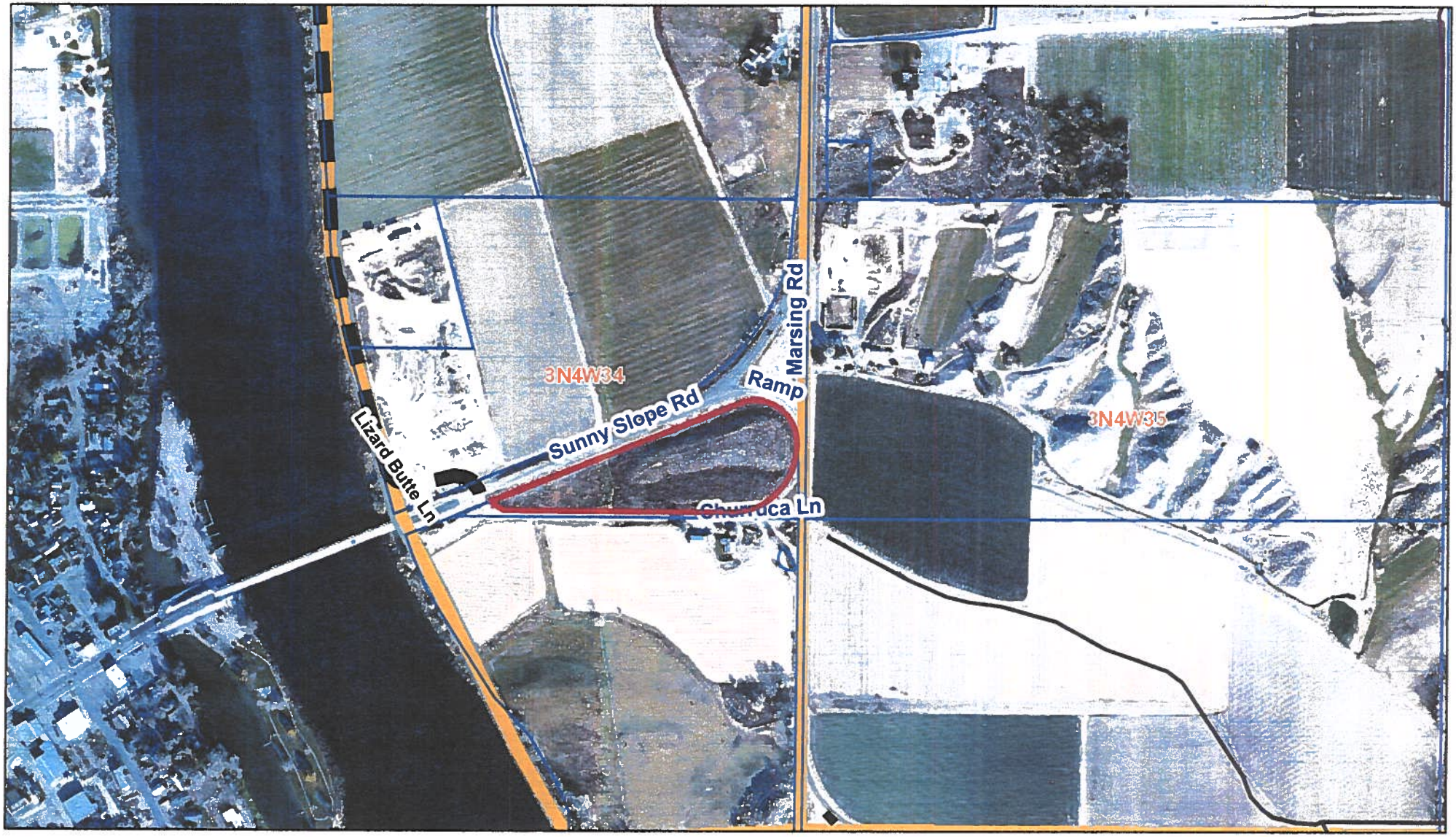
☐ Building ☐ Enclosure ☐ Barrier/Berm ☐ Bark Collars

4. **ANIMAL WASTE DISPOSAL** n.a.

☐ Individual Domestic Septic System ☐ Animal Waste Only Septic System

☐ Other: _____

Canyon County, ID Web Map



2/7/2023, 8:50:29 AM

Parcel Number Search _Query result
Hydro_NHDFlowline
CC_PrivateRoads

CanyonCountyRoads
Hwy
Roads
Roads

County Boundary
Current Impact Area
City Limits
Sections

Canyon County Imagery_2019
Red: Band_1
Green: Band_2
Blue: Band_3

1:9,028
0 0.05 0.1 0.2 mi
0 0.07 0.15 0.3 km

Bureau of Land Management, State of Oregon, State of Oregon DOT, State of Oregon GEO, Esri Canada, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Canyon County, ID

Bureau of Land Management, State of Oregon, State of Oregon DOT, State of Oregon GEO, Esri Canada, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA | COMPASS | Nampa GIS | Canyon County Sheriff's Office

MATERIALS TESTING & INSPECTION
AN ATLAS COMPANY

❑ Environmental Services ❑ Geotechnical Engineering ❑ Construction Materials Testing ❑ Special Inspections

PHASE I ENVIRONMENTAL SITE ASSESSMENT
for
Parcel R335900128
Marsing, Idaho

prepared for:

Bill Werhane
20968 Blossom Heights Lane
Caldwell, Idaho 83607

MTI File Number: B200224E
Date: February 20, 2020

2791 S. Victory View Way • Boise, Idaho 83709 • (208) 376-4748 • Fax (208) 322-6515
mti@mti-id.com • www.mti-id.com

INTRODUCTION

General

This report presents the findings and conclusions of the Phase I Environmental Site Assessment (Phase I ESA) conducted for Bill Werhane on Parcel R33590012B, Marsing, Idaho.

Purpose

The purpose of this Phase I ESA is to identify, to the extent feasible pursuant to the processes prescribed in ASTM Standard E1527-13, recognized environmental conditions (RECs) in connection with the subject Property. The purpose of ASTM Standard E1527-13 is to define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. As such, ASTM E1527-13 is intended to permit the user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability: That is, the practices that constitute "all appropriate inquiries into the previous ownership and uses of the Property consistent with good commercial and customary practice" as defined in 42 USC § 9601(35)(B).

In defining a standard of good commercial and customary practice for conducting an environmental site assessment of a parcel of property, the goal of the processes established by ASTM E1527-13 is to attempt to identify recognized environmental conditions. The term recognized environmental conditions means "the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: 1) due to *release* to the *environment*; 2) under conditions indicative of a release to the environment: or 3) under conditions that pose a *material threat* of a future *release* to the environment". The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The term "presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*" is self-defined. The term "likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*" reflects the potential for contamination from the federal and state standard environmental record sources that are required to be reviewed under ASTM E1527. ASTM E1527 requires the review of standard sources with a minimum search distance (radius) realizing that there is potential for contamination from these types of sources to extend to the subject Property.

Scope of Services

The research consisted of obtaining information from sources including governmental agencies, public utilities and where possible, the current property owners. Federal, state, and local government records were reviewed to identify reports of environmental conditions on the subject and adjacent properties that may affect the subject Property. A complete listing of the databases reviewed can be found in the *Records Review* section of this report. A description of these databases can be found in the *Glossary of Terms Used* section in the appendix of this report.

Under ASTM E1527-13, the User has an obligation to report to the preparer of the Phase I ESA any environmental liens encumbering the subject Property or any specialized knowledge or experience of the User that would provide important information about previous ownership or uses of the subject Property that may be material to identifying

recognized environmental conditions (RECs). As a matter of routine, MTI asks the Owner or other individual(s) with *actual knowledge* of the Property to complete our Environmental Questionnaire. *Actual knowledge* is defined by ASTM E1527 as — *the knowledge actually possessed by an individual who is a real person, rather than an entity. Actual knowledge is to be distinguished from constructive knowledge as that knowledge imputed to an individual or entity.* MTI's questionnaire is modeled from the ASTM E 1528 Transaction Screen Process with some additions. An Environmental Questionnaire and Disclosure Statement was emailed to the property owner and/or User of this document to obtain pertinent environmental information regarding the present and past use of the subject Property. This document, completed by Mr. Bill Werhane and dated February 11, 2020, has been received and is discussed herein. Where available, additional information was obtained from interviews with people having *actual knowledge* of the site that might reveal recognized environmental conditions on the Property.

Significant Assumptions
During our site reconnaissance and subsequent research, MTI assumed the following:

1. The land included for assessment, as defined by the client in the form of a site plan, plat map, legal description or other mechanism, coincides with the actual property boundaries recorded at the county assessor's office.
2. Local groundwater flow is similar to regional groundwater gradient.

Limitations and Exceptions of Assessment
The site reconnaissance conducted on February 11, 2020, encountered no interference to the observance of surface conditions or access.

Warranty and Limiting Conditions
The field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a general environmental assessment of the subject Property within the context of ASTM E1527. MTI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted environmental engineering methods, only for the subject Property described in this report.

These environmental methods are necessarily limited to the conditions observed at the time of the reconnaissance and research. The report is also limited to the information available at the time it was prepared. In the event additional information is provided to MTI following the report, it may, but is not required to, be forwarded to the client in the form received for evaluation by the client. There is a distinct possibility that conditions may exist that could not be identified within the scope of the assessment or that were not apparent during the site reconnaissance. MTI cannot warrant or guarantee that the information provided is complete or accurate. MTI prepared this report for the use of Bill Werhane ("Client"), and the conclusions and recommendations presented in this report are based upon the agreed upon scope of work outlined in the report and the Contract for Professional Services between the Client and MTI ("Consultant"). Use or misuse of this report, or reliance upon the findings hereof by any parties other than the Client, is at their own risk. Neither Client nor Consultant makes any representation of warranty to such other parties as to the accuracy or completeness of this report or the suitability of its use by such other parties for any purpose whatsoever, known or unknown to Client or Consultant. Neither Client nor Consultant shall have any liability to indemnify or hold harmless third parties for any losses incurred by the actual or purported use or misuse of this report. This report represents the opinion of MTI, and no other warranties are implied or expressed.

Authorization, Special Terms, and Conditions

Authorization to perform this assessment was given in the form of a written notice to proceed from Bill Werhane to Monica Daggett of MTI on February 7, 2020, and is subject to all of the terms, conditions, and limitations described in the Contract/Purchase Order entered into between Bill Werhane and MTI. As per the Client's instructions, MTI did not perform any additional screenings, investigations, surveys, or assessments, such as the following: radon, asbestos-containing material, lead-based paint, lead-in-drinking water, wetland, PCB sampling, regulatory compliance, ecological/natural resources or impacts, endangered species, indoor air quality, cultural and historical resources, industrial hygiene, health and safety, or high-voltage power lines.

User Reliance

The User understands and agrees that the document listed above is a copyrighted document, which MTI is the copyrighted owner, and that unauthorized use or copying this document is strictly prohibited without the express written permission of MTI. The User understands that MTI may withhold such permission at its sole discretion or grant such permission upon such terms and conditions as it deems acceptable, such as the execution of a Hold Harmless Agreement or the payment of a re-use fee. Third parties may obtain a "Letter of Reliance" or "Read and Rely" letter from MTI if agreed to by the User.

This ESA report is prepared for the exclusive use and reliance of Bill Werhane use or reliance by any other party is prohibited without the written authorization of Bill Werhane and MTI.

Reliance on the ESA by the client and all authorized parties will be subject to the terms, conditions and limitations stated in the proposal, ESA report, and MTI's Agreement for Services. The limitation of liability defined in the Agreement for Services is the aggregate limit of MTI's liability to the client and all relying parties.

Continued viability of this report is subject to ASTM E1527-13 Sections 4.6 and 4.8. If the ESA will be used by a different user (third party) than the user for whom the ESA was originally prepared, the third party must also satisfy the user's responsibilities in Section 6 of ASTM E1527-13.

SUBJECT PROPERTY

Subject Property Location and Legal Description

The subject Property was located in the NE¼ Section 34, Township 3 North, Range 4 West of the Boise Meridian and was generally situated at the intersection of Highway 55 and Sunnyslope Road in rural Caldwell at the Marsing border, Canyon County, State of Idaho. Additional information describing the subject Property is included in the appendix of this report.

Subject Property and Vicinity Characteristics

The subject Property comprised a 7.67-acre undeveloped parcel. The Canyon County Assessor provided the following information pertaining to the subject Property:

1) The property owner was Werhane Family Living Trust.
2) The parcel number was R33590012B.
3) Parcel zoning was other non-agricultural land (518).

Vegetation consisted of native and volunteer grasses and shrubs, as well as mature trees along the southern and northeastern Property boundaries. Access to the site was gained by the two-lane, asphalt-paved Churruca Lane, which was located adjacent to the south side of the Property. The subject Property was located within an agricultural area of the Marsing/Caldwell border, and agricultural sites were located within the general vicinity of the subject Property.

Current Uses of the Subject Property

At the time of site reconnaissance, the subject Property was undeveloped.

Descriptions of Structures, Roads, and Other Improvements on the Subject Property

MTI observed dilapidated wood fencing on the northern Property boundary. In addition, irrigation ditches followed the Property boundaries on all sides. A cleared gravel road led from the southern Property boundary north toward the center of the Property. No other structures or improvements were observed or reported.

Current Use of Adjoining Properties

The adjacent site to the north was occupied by Highway 55. The adjacent sites to the east and south were agricultural in nature. In addition, a residence was present on the adjacent site to the south, along with a former gas station. The adjacent site to the west was under development in conjunction with the developments on the Snake River Bridge.

USER PROVIDED INFORMATION

Under the standards as outlined in the ASTM E1527-13 the User of the Phase I ESA has certain responsibilities regarding notification to the preparer of the report. Specifically, the User must notify the preparer of the report of any environmental liens encumbering the subject Property or any specialized knowledge or information about previous ownership or uses of the subject Property that may be material to identifying RECs.

Title Records
The Client did not request nor provide a chain-of-title as part of the scope of this Phase I ESA. MTI determined prior use of the subject Property with the aid of other records sources and interviews.

Environmental Liens or Activity and Use Limitations
No past or current environmental liens, deed restrictions, consent agreements, or government actions were reported by the User.

Specialized Knowledge
The Client/User did not report any specialized knowledge or provide any specialized documentation to MTI for review.

Commonly Known or Reasonably Ascertainable Information
The Client/User reported that a gas station occupied the adjacent property to the south over thirty years prior to the printing of this report. No other documentation was reasonably ascertainable related to this site; however, due to the age of the site and time passed since active use as a gas station, MTI has determined that this information does not constitute a REC for the subject Property. In addition, the subject Property was used for relocation of fill dirt from the construction and improvements of Highway 55, which as of the printing of this report was adjacent to the northern property boundary.

Valuation Reduction for Environmental Issues
No unexpected RECs were discovered by performing this ESA.

Owner, Property Manager, and Occupant Information
Information provided by the property owner, property manager, or occupant did not indicate a REC in connection with the Property.

Reason for Performing the Phase I Environmental Site Assessment
It is MTI's understanding that the Property is being developed by Bill Werhane. This Phase I ESA fulfills one requirement of the innocent landowner defense to CERCLA liability.

RECORDS REVIEW

The purpose of the records review is to obtain and review records that will help identify recognized environmental conditions in connection with the Property.

Standard Environmental Record Sources, Federal, and State

The review of the available federal and state environmental information included those properties or incident reports within an area not smaller than the ASTM 1527-13 minimum search distance (radius). The records review indicates the following summary of state and federal environmental data, which identifies potential environmental problem sites and other activities from the records of the State of Idaho and the United States Environmental Protection Agency (US EPA):

STANDARD ENVIRONMENTAL RECORD SOURCES REVIEWED	APPROXIMATE MINIMUM SEARCH DISTANCE IN MILES (KM)	IDENTIFIED ON PROPERTY
Federal NPL site list	1.0 (1.6)	No
Federal delisted NPL site list	0.5 (0.8)	No
Federal CERCLIS list	0.5 (0.8)	No
Federal CERCLIS NFRAP site list	0.5 (0.8)	No
Federal RCRA CORRACTS facilities list	1.0 (1.6)	No
Federal RCRA non-CORRACTS TSD facilities list	0.5 (0.8)	No
Federal RCRA (small and large-quantity) generators list	Property and adjoining properties	No
Federal institutional/engineering control registries	Property only	No
Federal ERNS list	Property only	No
State or tribal lists of hazardous waste sites identified for investigation or remediation (NPL and CERCLIS equivalents)	NPL equivalent – 1.0 (1.6) CERCLIS equivalent – 0.5 (0.8)	No No
State or tribal landfill and/or solid waste disposal site lists	0.5 (0.8)	No
State or tribal leaking UST lists	0.5 (0.8)	No
State or tribal registered UST lists	Property and adjoining properties	No
State or tribal institutional/engineering control registries	Property only	No
State or tribal voluntary cleanup sites	0.5 (0.8)	No
State or tribal Brownfield sites	0.5 (0.8)	No

I. STATE OF **IDAHO** ASTM DATABASE INFORMATION

1.	State Priority List	State of Idaho uses US EPA CERCLIS List
2.	Leaking Underground Storage Tank Facility List	01 LUST sites within a 0.5 Mile Radius.
3.	Solid Waste Landfill Capacity Inventory	00 SWF sites within a 0.5 Mile Radius.
4.	Underground Storage Tank Facility List	00 UST sites within a 0.25 Mile Radius.
5.	Voluntary Cleanup Sites	00 Voluntary cleanup sites within a 0.5 Mile Radius
6.	Brownfield Sites	00 Brownfield sites within a 0.5 Mile Radius.

II. FEDERAL ASTM DATABASE INFORMATION

1.	National Priorities List (NPL)	00 NPL sites within a 1.0 Mile Radius.
2.	Delisted NPL	00 delisted NPL sites within a 0.5 Mile Radius.
3.	Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) / CERCLIS NFRAP	01 CERCLIS / CERCLIS NFRAP sites within a 0.5 Mile Radius.
4.	Resource Conservation and Recovery Act (RCRA) Corrective Action Report	00 CORRACTS sites within a 1.0 Mile Radius.
5.	RCRA small- and large-quantity generators	00 RCRA facilities within a 0.25 Mile Radius.
6.	RCRA Treatment, Storage, and Disposal (TSD)	00 RCRA-TSD facilities within a 0.5 Mile Radius.

MTI reviewed those sites that were listed within the ASTM 1527-13 minimum search distance and researched only those sites from the report that posed a potential environmental impact to or were located on the subject Property. A copy of the database report, provided by Environmental Risk Information Services (ERIS), is included in the appendix.

ASTM E1527-13 defines the following conditions in connection with the subject Property: Recognized Environmental Conditions (REC), Controlled Recognized Environmental Conditions (CREC), or Historical Recognized Environmental Conditions (HREC). A REC represented a past, current or material threat of release of petroleum products or hazardous substances into the environment. A CREC represented a past release that had been addressed to the satisfaction of the applicable regulatory authority resulting in required controls (e.g. *property use restrictions, activity and use limitations, institutional controls, or engineering controls).* An HREC represented a past release that had been remediated to the satisfaction of the applicable regulatory authority or has met unrestricted use criteria established by a regulatory authority without subjecting the property to any required controls.

All of the sites listed within the ASTM E1527-13 Minimum Search Distance from the Property were located down groundwater gradient and across the Snake River from the subject Property and do not represent an environmental impact to the subject Property. Therefore, based on information obtained from the database report, no sites were found that represent an environmental impact to the subject Property.

Additional Environmental Records Sources

MTI inquired with the Marsing Rural Fire District regarding any environmental records associated with the subject Property, such as USTs. The Marsing Rural Fire District does not have a record keeping system, but according to MTI's phone interview with Fire Chief Brian Showalter, no environmental incidents have occurred on the subject Property. MTI determined that the review of the above standard environmental record sources was sufficient, and it is MTI's opinion that this data gap does not impact MTI's ability to recognize a REC in connection with the subject Property.

Physical Setting and Source(s)

The project site is located within the western Snake River Plain of southwestern Idaho and eastern Oregon. The plain is a northwest trending rift basin, about 45 miles wide and 200 miles long, that developed about 14 million years ago (Ma) and has since been occupied sporadically by large inland lakes. Geologic materials found within and along the plain's margins reflect volcanic and fluvial/lacustrine sedimentary processes that have led to an accumulation of approximately 1 to 2 km of interbedded volcanic and sedimentary deposits within the plain. Along the margins of the plain, streams that drained the highlands to the north and south provided coarse to fine-grained sediments eroded from granitic and volcanic rocks, respectively. About 2 million years ago the last of the lakes was drained and since that time fluvial erosion and deposition has dominated the evolution of the landscape. Pleistocene Lake Bonneville occupied much of northeast Utah until about 14,000 years ago when it drained in a catastrophic flood that modified much of the landscape near the Snake River of southwestern Idaho. The project site is underlain by "Gravel of the Bonneville Flood-scoured Whitney Terrace" as mapped by Othberg and Stanford (1993). This deposit consists of sandy pebble gravel remnants of the Whitney terrace scoured by late stages of the Bonneville Flood and includes abandoned flood channels. As a result of flood activity loess that once covered these gravels have been mostly removed. Local remnants of duripans developed in these gravels are similar to those on the older Whitney terrace.

Two soil types were identified on the subject Property. The western-most third of the subject Property consisted of Garbutt silt loam, formed from silty alluvium. The rest of the subject Property consisted of some variation of Cencove fine sandy loam, formed from mixed alluvium. Both soil types were considered to be moderately deep and well-drained.

The subject Property was located in the Boise River Valley roughly one-quarter mile east of the Snake River. Based on regional groundwater gradient, topography, and local surface water flow, the overall groundwater gradient in this area is west.

The subject Property and vicinity were characterized in part through the use of the following literature resources:

- Idaho Department of Water-Resources draft map, Treasure Valley Ground Water Elevations Spring, 1998, dated September 1998.
- U. S. Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey Database, http://websoilsurvey.sc.egov.usda.gov.

Historical Use Information
The objective of consulting historical sources is to develop a history of the previous uses or occupancies of the Property and surrounding area in order to identify those uses or occupancies that are likely to have led to recognized environmental conditions in connection with the Property. During our research, MTI reviewed as many of the ASTM listed record sources that were reasonably ascertainable and likely to be useful that include the following: (1) aerial photographs, (2) fire insurance maps, (3) property tax files, (4) recorded land title records, (5) USGS topographic maps, (6) local street directories, (7) building department records, and (8) zoning / land use records.

Aerial Photographs
MTI reviewed aerial photographs for the subject Property and surrounding area from ERIS. Copies of the aerial photographs are included in the appendix of this report. The Property was visible primarily as irrigated agricultural land until Highway 55 was developed to the north in 1971. A structure was visible on the subject Property only in the 1954 photograph. In 2006, it appeared that the subject Property was cleared and used for vehicle parking and fill dirt related to improvements on Highway 55. No significant changes were depicted on the subject Property between 2009 and 2019. No RECs were indicated by our review of the aerial photographs.

Fire Insurance Maps
The fire insurance maps did not provide coverage for the subject Property.

Property Tax Files
MTI did not review property tax files as a part of this assessment.

Recorded Land Title Records
The Client did not request nor provide a chain-of-title to include as part of the scope of this Phase I ESA. MTI determined prior use of the subject Property with the aid of other historical records sources and interviews.

USGS Topographic Map(s)

The 1971 USGS 7.5 Minute Quadrangle depicted the subject Property in a rural area of Marsing. Two structures were depicted on the adjacent property to the south. The map depicted Highway 55 immediately north of the subject Property. The Snake River was depicted as approximately one-quarter mile to the west of the subject Property. A copy of the topographic map is included in the appendix of this report. No RECs were indicated by our review of the topographic maps.

Local Street Directories

MTI reviewed the Historical Directory Report for the subject Property and surrounding properties from ERIS. The directories provided coverage from 2000 through 2018, and the subject Property was not listed. The surrounding properties listed in the directories were entirely agricultural in nature, and no listing provided for the adjacent properties were a concern. A copy of this ERIS report is included in the appendix of this report.

Building Department Records

MTI did not review building department records as part of this assessment.

Zoning and Land Use Records

During our research, MTI consulted various record sources such as the Canyon County Assessor's office and the 1940 Metsker's Atlas. The Canyon County Assessor's website indicated that the subject Property consisted of 7.67-acre parcel, which was zoned as other non-agricultural land (518). The 1940 Metsker's Atlas identified the subject Property as owned by C.M. Munsey.

Historical Use Information on the Property

The Property was historically used for pasture. No RECs were noted during the historical records review.

Historical Use Information on Adjoining Properties

Historical land use of surrounding sites from the subject Property included agricultural and undeveloped land prior to 1939. In 1954, a residence was depicted on the property adjacent to the south, and the owner reported in the questionnaire that this residence had an associated operating gas station until the 1980s. In 1971, Highway 55 was developed along the northern property boundary.

SITE RECONNAISSANCE

The objective of site reconnaissance is to obtain information indicating the likelihood of identifying RECs in connection with the Property.

Methodology and Limiting Conditions
Visual reconnaissance was conducted February 11, 2020, in general accordance with MTI's standard environmental assessment procedures. This reconnaissance consisted of systematically walking the Property to provide an overlapping field of view and noting recognized environmental conditions as encountered. Photographic documentation of pertinent recognized environmental conditions, improvements, and adjacent properties was made and has been included in the appendix of this report. The reconnaissance of the adjacent properties was performed by walking the perimeter of the subject Property, by observing and photographing the readily accessible and visible areas bordering or adjacent to the subject Property, and by noting potential environmental conditions. At the time of the reconnaissance, all required areas were accessible. The scope of work did not include sampling of items such as soil, groundwater, surface water, drum contents, tanks, other containers, etc., for chemical laboratory analysis.

General Site Setting
At the time of site reconnaissance, the subject Property was undeveloped. Vegetation consisted of native and volunteer grasses and shrubs, as well as mature trees along the southern and northeastern property boundaries. MTI observed dilapidated wooden fencing on the northern Property boundary. In addition, irrigation ditched followed the Property boundaries on all sides. A cleared gravel road led from the southern property boundary up toward the center of the subject Property. No other structures or improvements were observed or reported.

Hazardous Substances and Petroleum Products
No hazardous substances were observed during the site reconnaissance.

Unidentified Substances
No unidentified substances were observed during the site reconnaissance.

Storage Tanks
No evidence of storage tanks was observed during the site reconnaissance.

Odors
No odors were discovered during the site reconnaissance.

Pools of Liquid
No pools of liquid were observed during the site reconnaissance.

Drums
No drums were observed during the site reconnaissance.

Staining
No staining was observed during the site reconnaissance.

ASTs
No evidence of aboveground storage tanks was observed during the site reconnaissance.

Lack of Secondary Containment
Since no evidence of aboveground storage tanks was observed during the site reconnaissance, secondary containment is not applicable to the subject Property.

USTs
No evidence of underground storage tanks was observed during the site reconnaissance.

PCBs
Three pole-mounted transformers, owned and operated by Idaho Power Company, were located at the southern edge of the subject Property and displayed blue-NonPCB sticker. To the east along the southern Property boundary, two other pole-mounted transformers without blue Non-PCB stickers were also observed. All five of the transformers appeared to be in good condition and did not show any signs of leakage. Power companies are allowed to place Non-PCB containing stickers on transformers and other electrical equipment that contains less than or equal to 50 parts per million (PPM) PCBs.

Solid Waste Disposal
There was no evidence found of waste disposal on the subject Property.

Surface Water Observations
No surface water was observed on the Property at the time of the site reconnaissance. The lot is graded such that it is not likely to receive offsite drainage. Storm water accumulating on the Property infiltrates surface soils.

Exterior Observations
The following subsections list the observations noted during the site reconnaissance specific to the accessed exterior spaces on the subject Property.

Stressed Vegetation
De minimis stressed vegetation was observed at the southwest corner of the subject Property.

Pits, Ponds, and Lagoons
No pits, ponds, or lagoons were found on the subject Property.

Wells
No wells were found on the subject Property. If any wells or well structures that are not to remain in use are discovered during the development of the Property, they should be abandoned in accordance with the Administrative Rules of the Idaho Water Resource Board Well Construction Standards Rules IDAPA 37, Title 03, Chapter 09, Rule 25.

Septic Systems
No treatment plants or septic systems were observed on the subject Property. If during future development any existing tanks are discovered and are to be abandoned, they should be properly closed or removed. The Idaho DEQ recommends the following procedures for septic tank abandonment: 1) disconnect the inlet and outlet

piping; 2) pump the scum and septage with approved disposal; 3) fill the septic tank with earthen material or physically destroy the septic tank or remove the septic tank from the ground.

Discharge Features
No drains, catch basins, or oil/water separator vaults were observed on the subject Property.

Soil Contamination
No evidence of soil contamination was observed on the subject Property during the site reconnaissance, and no indication of soil contamination was reported by the Idaho DEQ.

Groundwater Contamination
No evidence of groundwater contamination was found on the subject Property during the site reconnaissance, and no indication of groundwater contamination was reported by the Idaho DEQ.

Use of Pesticides
No evidence of pesticide usage was observed on the subject Property. As of the printing of this report, there was no evidence that past usage of pesticides, herbicides, or other agricultural chemicals were mixed, formulated, or disposed of at the Property.

Vapor Intrusion
Migrating contaminated groundwater is not a concern up groundwater gradient from the subject Property, and vapor intrusion is not likely to occur from the subject Property.

Interior Observations
Since the subject Property lacked buildings or structures, no interior observations were noted.

INFORMATION FROM INTERVIEWS

Interview with Owner/Site Manager
The property owner, Mr. Bill Werhane, was interviewed using the standard MTI Questionnaire, which is modeled after the Transaction Screening Questionnaire from ASTM E 1528-14. A copy of the completed questionnaire is included in the appendix of this report. No RECs were reported or identified in connection with the subject Property from the completed questionnaire. Specific information reported to MTI from this questionnaire is summarized below:

- A gas station was present on the adjacent property to the south over thirty years prior to the printing of this report.
- The site was used for relocation of fill dirt from the construction and improvements of Highway 55, which as of the printing of this report was adjacent to the northern property boundary.

Interview with Local Government Officials
MTI submitted a public records request to the Marsing Rural Fire Department and the DEQ. No RECs were identified during these public records requests.

MTI discussed the subject Property in a telephone interview with Mr. Brian Showalter of the Marsing Rural Fire Department on February 12, 2020, and no records were available for the subject Property.

Interview with Others
No other persons were interviewed during this assessment.

DATA GAPS

MTI attempted to identify all obvious uses of the subject Property since the first developed use, or back to 1940, whichever was earlier. Despite good faith efforts to determine historical use of the subject Property, an aerial photograph from 1939 was the earliest date that MTI obtained information regarding property use. Historical data prior to 1939 was not reasonably ascertainable; therefore, a data failure exists for the subject Property. It is MTI's opinion that this does not represent a significant data gap, and therefore, does not impact MTI's ability to recognize a REC in connection with the subject Property.

DEVIATIONS

During our performance of this Phase I ESA, MTI did not deviate from ASTM E1527-13.

NON-SCOPE CONSIDERATIONS

There may be additional environmental issues or conditions at a property that parties may wish to assess in connection with commercial real estate that are outside the scope of ASTM E1527. Some substances may be present on a property in quantities and under conditions that may lead to contamination of the property or of nearby properties that are not included in the CERCLA definition of hazardous substances (42 USC § 9601 (14)) or that do not otherwise present potential CERCLA liability. As per the Client's instructions, MTI did not perform any additional screenings, investigations, surveys, or assessments for the subject Property, such as the following:

radon, asbestos-containing material, lead-based paint, lead-in-drinking water, wetland, PCB sampling, regulatory compliance, ecological/natural resources or impacts, endangered species, indoor air quality, cultural and historical resources, industrial hygiene, health and safety, or high-voltage power lines.

FINDINGS

As noted in the warranty section, this report is limited to the information available or known to MTI as of the date of the report, and if any additional information becomes available, it will be forwarded to you for your evaluation.

The following known or suspect RECs, CRECs, HRECs, or *de minimis* conditions were identified on the subject Property:

- D*e minimis* stressed vegetation was observed at the southwest corner of the subject Property.
- The owner reported that a gas station occupied the adjacent property to the south over thirty years prior to the printing of this report.
- The subject Property was used for relocation of fill dirt from the construction and improvements of Highway 55 in 2006.

OPINION

Although *de minimis* stressed vegetation was observed at the southwest corner of the subject Property, MTI determined that the cause was likely oversaturation of the soil due the slope and the proximity of the Snake River. As a result, it is MTI's opinion that this does not constitute a REC for the subject Property.

Although the owner reported that a gas station occupied the adjacent property to the south over thirty years prior to the printing of this report, due to the age of the site and time passed since active use as a gas station, MTI has determined that this information does not constitute a REC for the subject Property.

Although the subject Property was used for relocation of fill dirt from the construction and improvements of Highway 55 directly adjacent to the north of the subject Property, the health of the vegetation at the time of site reconnaissance indicates that soil contamination is unlikely. As such, MTI has determined that the presence of fill dirt on the subject Property does not constitute a REC for the subject Property.

CONCLUSIONS

MTI has conducted a Phase I ESA in conformance with the scope and limitations of ASTM International, E1527-13 of Parcel R33590012B, Marsing, Idaho, the subject Property. Any exception to, or deletions from, this practice are described in the Limitations and Exceptions of Assessment section of this report. This assessment has revealed no evidence of a REC in connection with the subject Property, and MTI recommends no additional investigation based on our findings.

GEOTECHNICAL INVESTIGATION

PROPOSED COMMERCIAL DEVELOPMENT

SEC of Highway 55 & Churruca Lane

Caldwell, ID

PREPARED FOR:

Mr. Bill Werhane
20968 Blossom Heights Lane
Caldwell, ID 83607

PREPARED BY:

Atlas Technical Consultants, LLC
2791 South Victory View Way
Boise, ID 83709

December 22, 2020
B202034g

ATLAS

December 22, 2020

Atlas No. B202034g

Mr. Bill Werhane
20968 Blossom Heights Lane
Caldwell, ID 83607

Subject: Geotechnical Investigation
Proposed Commercial Development
SEC of Highway 55 & Churruca Lane
Caldwell, ID

Dear Mr. Werhane:

In compliance with your instructions, Atlas has conducted a soils exploration and foundation evaluation for the above referenced development. Fieldwork for this investigation was conducted on 10 December, 2020. Data have been analyzed to evaluate pertinent geotechnical conditions. Results of this investigation, together with our recommendations, are to be found in the following report. We have provided a PDF copy for your review and distribution.

Often, questions arise concerning soil conditions because of design and construction details that occur on a project. Atlas would be pleased to continue our role as geotechnical engineers during project implementation.

If you have any questions, please call us at (208) 376-4748.

Respectfully submitted,

PROFESSIONAL ENGINEER
LICENSED
18300
12-22-20
STATE OF IDAHO
JACOB SCHLADOR

Jacob Schlador, PE
Geotechnical Engineer

Elizabeth Brown, PE
Geotechnical Services Manager

ATLAS

CONTENTS

TABLES

APPENDICES

1. INTRODUCTION

This report presents results of a geotechnical investigation and analysis in support of data utilized in design of structures as defined in the 2015 International Building Code (IBC). Information in support of groundwater and stormwater issues pertinent to the practice of Civil Engineering is included. Observations and recommendations relevant to the earthwork phase of the project are also presented. Revisions in plans or drawings for the proposed development from those enumerated in this report should be brought to the attention of the soils engineer to determine whether changes in the provided recommendations are required. Deviations from noted subsurface conditions, if encountered during construction, should also be brought to the attention of the soils engineer.

1.1 Project Description

The proposed development is southwest of the City of Caldwell, Canyon County, ID, and occupies a portion of the NE¼SE¼ of Section 34, Township 3 North, Range 4 West, Boise Meridian. This project will consist of construction of a commercial development with an unknown number of structures. The site to be developed is approximately 7.67 acres. Total settlements are limited to 1 inch. Loads of up to 4,000 pounds per lineal foot for wall footings, and column loads of up to 50,000 pounds were assumed for settlement calculations. Additionally, assumptions have been made for traffic loading of pavements. Retaining walls are not anticipated as part of the project. Atlas has not been informed of the proposed grading plan; however, Atlas was informed that the eastern portion of the site will consist of some cut to level of the project site.

1.2 Authorization

Authorization to perform this exploration and analysis was given in the form of a written authorization to proceed from Mr. Bill Werhane to Monica Saculles of Atlas Technical Consultants (Atlas), on December 2, 2020. Said authorization is subject to terms, conditions, and limitations described in the Professional Services Contract entered into between and Atlas. Our scope of services for the proposed development has been provided in our proposal dated April 10, 2020 and repeated below.

1.3 Scope of Investigation

The scope of this investigation included review of geologic literature and existing available geotechnical studies of the area, visual site reconnaissance of the immediate site, subsurface exploration of the site, field and laboratory testing of materials collected, and engineering analysis and evaluation of foundation materials.

ATLAS

2. SITE DESCRIPTION

2.1 Site Access

Access to the site may be gained via Interstate 84 to the Karcher Road exit. Proceed west on Karcher Road/Highway 55 for approximately 9.5 miles where Highway 55 turns south. Continue south on Highway 55 for about 3.5 miles to its intersection with Sunny Slope Road. The site occupies the southwest corner of this intersection. The location is depicted on site maps included in the **Appendix**.

2.2 Regional Geology

The project site is located within the western Snake River Plain of southwestern Idaho and eastern Oregon. The plain is a northwest trending rift basin, about 45 miles wide and 200 miles long, that developed about 14 million years ago (Ma) and has since been occupied sporadically by large inland lakes. Geologic materials found within and along the plain's margins reflect volcanic and fluvial/lacustrine sedimentary processes that have led to an accumulation of approximately 1 to 2 km of interbedded volcanic and sedimentary deposits within the plain. Along the margins of the plain, streams that drained the highlands to the north and south provided coarse to fine-grained sediments eroded from granitic and volcanic rocks, respectively. About 2 million years ago the last of the lakes was drained and since that time fluvial erosion and deposition has dominated the evolution of the landscape. Pleistocene Lake Bonneville occupied much of northeast Utah until about 14,000 years ago when it drained in a catastrophic flood that modified much of the landscape near the Snake River of southwestern Idaho. The project site is underlain by "Gravel of the Bonneville Flood-scoured Whitney Terrace" as mapped by Othberg and Stanford (1993). This deposit consists of sandy pebble gravel remnants of the Whitney terrace scoured by late stages of the Bonneville Flood and includes abandoned flood channels. As a result of flood activity loess that once covered these gravels have been mostly removed. Local remnants of duripans developed in these gravels are similar to those on the older Whitney terrace.

2.3 General Site Characteristics

The site to be developed is approximately 7.67 acres in size. The site currently exists as an undeveloped property. Through a verbal conversation with the Mr. Bill Werhane, Atlas was informed that excess roadway materials had been placed in the eastern portion of the project site. Atlas also reviewed aerial photographs of the site and noted that earth working operations appeared to occur on the project site between 2005 and 2006. To the east, north, and south of the site are agricultural fields. To the west of the site are the Snake River and the City of Melba.

Vegetation on the site consists primarily of bunchgrass and other native weeds and grasses. The eastern two thirds of the site tended to gradually slope downward from east to west at approximately 10 feet horizontal to 1 foot vertical. The western third of the site was relatively flat and level. Highway 55 was also noted to be higher in elevation than the project site on the western half of the project site.

Regional drainage is west toward the Snake River. Regional drainage is north and west toward the Boise River. Stormwater drainage for the site is achieved by both sheet runoff and percolation through surficial soils. Runoff predominates for the steeper slopes while percolation prevails across the gently sloping and near level areas. From the north and west, intermittent off-site stormwater may drain onto the project site. Stormwater drainage collection and retention systems are not in place on the project site and were not noted within the vicinity of the project site.

2.4 Regional Site Climatology and Geochemistry

According to the Western Regional Climate Center, the average precipitation for the Treasure Valley is on the order of 10 to 12 inches per year, with an annual snowfall of approximately 20 inches and a range from 3 to 49 inches. The monthly mean daily temperatures range from 21°F to 95°F, with daily extremes ranging from roughly -25°F to 111°F. Winds are generally from the northwest or southeast with an annual average wind speed of approximately 9 miles per hour (mph) and a maximum of 62 mph. Soils and sediments in the area are primarily derived from siliceous materials and exhibit low electro-chemical potential for corrosion of metals or concretes. Local aggregates are generally appropriate for Portland cement and lime cement mixtures. Surface water, groundwater, and soils in the region typically have pH levels ranging from 7.2 to 8.2.

3. SEISMIC SITE EVALUATION

3.1 Geoseismic Setting

Soil on site are classed as Site Class D in accordance with Chapter 20 of the American Society of Civil Engineers (ASCE) publication ASCE/SEI 7-10. Structures constructed on this site should be designed per IBC requirements for such a seismic classification. Our investigation did not reveal hazards resulting from potential earthquake motions including: slope instability, liquefaction, and surface rupture caused by faulting or lateral spreading. Incidence and anticipated acceleration of seismic activity in the area is low.

3.2 Seismic Design Parameter Values

The United States Geological Survey National Seismic Hazard Maps (2008), includes a peak ground acceleration map. The map for 2% probability of exceedance in 50 years in the Western United States in standard gravity (g) indicates that a peak ground acceleration of 0.171 is appropriate for the project site based on a Site Class D.

The following section provides an assessment of the earthquake-induced earthquake loads for the site based on the Risk-Targeted Maximum Considered Earthquake (MCE_R). The MCE_R spectral response acceleration for short periods, S_{MS}, and at 1-second period, S_{M1}, are adjusted for site class effects as required by the 2015 IBC. Design spectral response acceleration parameters as presented in the 2015 IBC are defined as a 5% damped design spectral response acceleration at short periods, S_{DS}, and at 1-second period, S_{D1}.

The USGS National Seismic Hazards Mapping Project includes a program that provides values for ground motion at a selected site based on the same data that were used to prepare the USGS ground motion maps. The maps were developed using attenuation relationships for soft rock sites; the source model, assumptions, and empirical relationships used in preparation of the maps are described in Petersen and others (1996).

Table 1 – Seismic Design Values

Seismic Design Parameter	Design Value
Site Class	D "Stiff Soil"
S_s	0.269 (g)
S_1	0.098 (g)
F_a	1.585
F_v	2.400
S_{MS}	0.426
S_{M1}	0.235
S_{DS}	0.284
S_{D1}	0.157

4. SOILS EXPLORATION

4.1 Exploration and Sampling Procedures

Field exploration conducted to determine engineering characteristics of subsurface materials included a reconnaissance of the project site and investigation by test pit. Test pit sites were located in the field by means of a Global Positioning System (GPS) device and are reportedly accurate to within ten feet. Upon completion of investigation, each test pit was backfilled with loose excavated materials. Re-excavation and compaction of these test pit areas are required prior to construction of overlying structures.

In addition, samples were obtained from representative soil strata encountered. Samples obtained have been visually classified in the field by professional staff, identified according to test pit number and depth, placed in sealed containers, and transported to our laboratory for additional testing. Subsurface materials have been described in detail on logs provided in the **Appendix**. Results of field and laboratory tests are also presented in the **Appendix**. Atlas recommends that these logs **not** be used to estimate fill material quantities.

4.2 Laboratory Testing Program

Along with our field investigation, a supplemental laboratory testing program was conducted to determine additional pertinent engineering characteristics of subsurface materials necessary in an analysis of anticipated behavior of the proposed structures. Laboratory tests were conducted in accordance with current applicable American Society for Testing and Materials (ASTM) specifications, and results of these tests are to be found in the **Appendix**. The laboratory testing program for this report included: Atterberg Limits Testing – ASTM D4318 and Grain Size Analysis – ASTM C117/C136.

4.3 Soil and Sediment Profile

The profile below represents a generalized interpretation for the project site. Note that on site soils strata, encountered between test pit locations, may vary from the individual soil profiles presented in the logs, which can be found in the **Appendix**.

At ground surface within test pit 1 were silt with sand soils. Silts with sand were brown to light brown, dry, and stiff to very stiff, with fine-grained sand. Throughout test pits 2 and 3 were silty sand with gravel fill materials. These fill materials were brown to light brown, dry, medium dense to dense, and contained fine to coarse-grained sand, fine to coarse gravel, intermittent cementation debris, and two to three foot boulders. Underlying the surficial silt soils in test pit 1 and throughout test pit 4 were silty sand sediments. Silty sands were brown to light brown, dry to moist, medium dense to dense, and contained fine to medium-grained sand. Organic materials were encountered to depths up to 1.3 feet bgs.

Competency of test pit sidewalls varied little across the site. In general, fine grained soils remained stable while more granular sediments and fill materials readily sloughed. However, moisture contents will also affect wall competency with saturated soils having a tendency to readily slough when under load and unsupported.

4.4 Volatile Organic Scan

No environmental concerns were identified prior to commencement of the investigation. Therefore, soils obtained during on-site activities were not assessed for volatile organic compounds by portable photoionization detector. Samples obtained during our exploration activities exhibited no odors or discoloration typically associated with this type of contamination. No groundwater was encountered.

5. SITE HYDROLOGY

Existing surface drainage conditions are defined in the **General Site Characteristics** section. Information provided in this section is limited to observations made at the time of the investigation. Either regional or local ordinances may require information beyond the scope of this report.

5.1 Groundwater

During this field investigation, groundwater was not encountered in test pits advanced to a maximum depth of 10.4 feet bgs. Soil moistures in the test pits were generally dry to moist throughout. In the vicinity of the project site, groundwater levels are controlled in large part by agricultural and residential irrigation activity and leakage from nearby canals. Maximum groundwater elevations likely occur during the later portion of the irrigation season. Furthermore, according to Idaho Department of Water Resources (IDWR) monitoring well data within approximately ½-mile of the project site, groundwater was measured at depths ranging between 14 and 60 feet bgs.

Based on evidence of this investigation and background knowledge of the area, Atlas estimates groundwater depths to remain greater than approximately 11 feet bgs throughout the year in the lower portions of the site.

5.2 Soil Infiltration Rates

Soil permeability, which is a measure of the ability of a soil to transmit a fluid, was not tested in the field. Given the absence of direct measurements, for this report an estimation of infiltration is presented using generally recognized values for each soil type and gradation. Infiltration rates through fill materials can be highly variable based on level of compaction and type of soil matrix. It is typically undesirable to direct storm water drainage to fill materials, as the addition of water into uncontrolled fill material can promote void spaces and settlement. Of soils comprising the generalized soil profile for this study, silt soils generally offer little permeability, with typical hydraulic infiltration rates of less than 2 inches per hour. Silty sand sediments usually display rates of 4 to 8 inches per hour.

It is recommended that infiltration facilities constructed on the site be extended into native silty sand sediments. Excavation depths of approximately 2.9 to greater than 10.1 feet bgs should be anticipated to expose these silty sand sediments. Because of the high soil permeability, ASTM C33 filter sand, or equivalent, should be incorporated into design of infiltration facilities. An infiltration rate of 2 inches per hour should be used in design. Actual infiltration rates should be confirmed at the time of construction.

6. SLOPES AND SETBACKS

Native slopes on the site were roughly 10 feet horizontal to 1 foot vertical (10:1). Therefore, slope setback requirements as outlined in the 2015 IBC are not applicable. Our investigation did not reveal any potential slope instabilities.

7. PRELIMINARY FOUNDATION AND SLAB DISCUSSION AND RECOMMENDATIONS

Various foundation types have been considered for support of the proposed development. Two requirements must be met in the design of foundations. First, the applied bearing stress must be less than the ultimate bearing capacity of foundation soils to maintain stability. Second, total and differential settlement must not exceed an amount that will produce an adverse behavior of the superstructure. Allowable settlement is usually exceeded before bearing capacity considerations become important; thus, allowable bearing pressure is normally controlled by settlement considerations.

Considering subsurface conditions and the proposed construction, it is recommended that the development be founded upon conventional spread footings and continuous wall footings. However, due to the presence of deep fill zones within portions of the project site a deep foundation option may be considered. These options include, but are not limited to, micropiles, h-piles, concrete caissons, and rammed earth aggregate piers. Atlas is available to provide further recommendations upon request. Total settlements should not exceed 1 inch if the following design and construction recommendations are observed.

Presently, there are an unknown number of structures proposed for the project site. Due to the presence of various fill depths and changes of general grading on the project site, Atlas recommends that structure specific subsurface investigations be conducted. The following recommendations are not specific to the individual structures, but rather should be viewed as guidelines for the subdivision-wide development.

7.1 Preliminary Foundation Design Recommendations

Based on data obtained from the site and test results from various laboratory tests performed, Atlas recommends the following guidelines for the net allowable soil bearing capacity:

Table 2 – Soil Bearing Capacity

Footing Depth	ASTM D1557 Subgrade Compaction	Net Allowable Soil Bearing Capacity
Footings must bear on competent, undisturbed, native silty sand sediments or compacted structural fill. Existing silt with sand soils, organic materials, and fill materials must be completely removed from below foundation elements.[1] Excavation depths ranging from roughly 1.2 to greater than 10.1 feet bgs should be anticipated to expose proper bearing soils.[2]	Not Required for Native Soil 95% for Structural Fill	2,000 lbs/ft^2 A ⅓ increase is allowable for short-term loading, which is defined by seismic events or designed wind speeds.

[1]It will be required for Atlas personnel to verify the bearing soil suitability for each structure at the time of construction.
[2]Depending on the time of year construction takes place, the subgrade soils may be unstable because of high moisture contents. If unstable conditions are encountered, over-excavation and replacement with granular structural fill and/or use of geotextiles may be required.

The following sliding frictional coefficient values should be used: 1) 0.35 for footings bearing on native silty sand sediments and 2) 0.45 for footings bearing on granular structural fill. A passive lateral earth pressure of 354 pounds per square foot per foot (psf/ft) should be used for silty sand sediments. For compacted sandy gravel fill, a passive lateral earth pressure of 496 psf/ft should be used.

Footings should be proportioned to meet either the stated soil bearing capacity or the 2015 IBC minimum requirements. Total settlement should be limited to approximately 1 inch, and differential settlement should be limited to approximately ½ inch. Objectionable soil types encountered at the bottom of footing excavations should be removed and replaced with structural fill. Excessively loose or soft areas that are encountered in the footings subgrade will require over-excavation and backfilling with structural fill. To minimize the effects of slight differential movement that may occur because of variations in the character of supporting soils and seasonal moisture content, Atlas recommends continuous footings be suitably reinforced to make them as rigid as possible. For frost protection, the bottom of external footings should be 30 inches below finished grade. Based on the soil types encountered onsite, foundation drains are not needed.

7.2 Preliminary Floor Slab-on-Grade

Uncontrolled fill was encountered in portions of the site. Atlas recommends that these fill materials be removed to a depth of at least 4 feet below existing grade. If fill materials remain after excavation, the exposed subgrade must be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. The excavated fill materials can be replaced in accordance with the **Structural Fill** section provided that all organic material and/or debris is completely removed. Once final grades have been determined, Atlas is available to provide additional recommendations.

It should be noted that uncontrolled fill materials will remain below the improved 4 foot zone (specified above). If water or increased moisture conditions occur within these fill materials, settlement or vertical movement may occur. This risk must be recognized and accepted by the project owner. Otherwise, complete removal of the fill zone will be required.

Organic, loose, or obviously compressive materials must be removed prior to placement of concrete floors or floor-supporting fill. In addition, the remaining subgrade should be treated in accordance with guidelines presented in the **Earthwork** section. Areas of excessive yielding should be excavated and backfilled with structural fill. Fill used to increase the elevation of the floor slab should meet requirements detailed in the **Structural Fill** section. Fill materials must be compacted to a minimum 95 percent of the maximum dry density as determined by ASTM D1557.

A free-draining granular mat should be provided below slabs-on-grade to provide drainage and a uniform and stable bearing surface. This should be a minimum of 4 inches in thickness and properly compacted. The mat should consist of a sand and gravel mixture, complying with Idaho Standards for Public Works Construction (ISPWC) specifications for ¾-inch (Type 1) crushed aggregate. The granular mat should be compacted to no less than 95 percent of the maximum dry density as determined by ASTM D1557. A moisture-retarder should be placed beneath floor slabs to minimize potential ground moisture effects on moisture-sensitive floor coverings. The moisture-retarder should be at least 15-mil in thickness and have a permeance of less than 0.01 US perms as determined by ASTM E96. Placement of the moisture-retarder will require special consideration with regard to effects on the slab-on-grade and should adhere to recommendations outlined in the ACI 302.1R and ASTM E1745 publications. Upon request, Atlas can provide further consultation regarding installation.

8. PAVEMENT DISCUSSION AND RECOMMENDATIONS

Atlas has made assumptions for traffic loading variables based on the character of the proposed construction. The Client shall review and understand these assumptions to make sure they reflect intended use and loading of pavements both now and in the future. Based on experience with soils in the region, a subgrade California Bearing Ratio (CBR) value of 5 has been assumed for near-surface silt soils and recompacted existing fill materials on site. The following are minimum thickness requirements for assured pavement function. Depending on site conditions, additional work, e.g. soil preparation, may be required to support construction equipment. These have been listed within the **Soft Subgrade Soils** section.

8.1 Flexible Pavement Sections

The American Association of State Highway and Transportation Officials (AASHTO) design method has been used to calculate the following pavement sections. Calculation sheets provided in the **Appendix** indicate the soils constant, traffic loading, traffic projections, and material constants used to calculate the pavement sections. Atlas recommends that materials used in the construction of asphaltic concrete pavements meet requirements of the ISPWC Standard Specification for Highway Construction. Construction of the pavement section should be in accordance with these specifications and should adhere to guidelines recommended in the section on **Construction Considerations**.

Table 3 – AASHTO Flexible Pavement Specifications

Pavement Section Component	Driveways and Parking Light Duty	Driveways and Parking Heavy Duty
Asphaltic Concrete	2.5 Inches	3.0 Inches
Crushed Aggregate Base	4.0 Inches	4.0 Inches
Structural Subbase	8.0 Inches	10.0 Inches
Compacted Subgrade	See **Pavement Subgrade Preparation** Section	See **Pavement Subgrade Preparation** Section

[1]**It will be required for Atlas personnel to verify subgrade competency at the time of construction.**

- Asphaltic Concrete: Asphalt mix design shall meet the requirements of ISPWC, Section 810 Class III plant mix. Materials shall be placed in accordance with ISPWC Standard Specifications for Highway Construction.
- Aggregate Base: Material complying with ISPWC Standards for Crushed Aggregate Materials.
- Structural Subbase: Granular structural fill material complying with the requirements detailed in the **Structural Fill** section of this report except that the maximum material diameter is no more than $^2/_3$ the component thickness. Gradation and suitability requirements shall be per ISPWC Section 801, Table 1.

8.2 Pavement Subgrade Preparation

Uncontrolled fill was encountered in portions of the site. Atlas recommends that these fill materials be removed to a depth of at least 4 feet below existing grade. If fill materials remain after excavation, the exposed subgrade must be compacted to at least 95 percent of the maximum dry density as determined by ASTM D698. The excavated fill materials can be replaced in accordance with the **Structural Fill** section provided that all organic material and/or debris is completely removed. Once final grades have been determined, Atlas is available to provide additional recommendations.

It should be noted that uncontrolled fill materials will remain below the improved 4 foot zone (specified above). If water or increased moisture conditions occur within these fill materials, settlement or vertical movement may occur. This risk must be recognized and accepted by the project owner. Otherwise, complete removal of the fill zone will be required.

8.3 Common Pavement Section Construction Issues

The subgrade upon which above pavement sections are to be constructed must be properly stripped, compacted (if indicated), inspected, and proof-rolled. Proof rolling of subgrade soils should be accomplished using a heavy rubber-tired, fully loaded, tandem-axle dump truck or equivalent. Verification of subgrade competence by Atlas personnel at the time of construction is required. Fill materials on the site must demonstrate the indicated compaction prior to placing material in support of the pavement section. Atlas anticipated that pavement areas will be subjected to moderate traffic. Atlas does not anticipate pumping material to become evident during compaction, but subgrade clays and silts near and above optimum moisture contents may tend to pump. Pumping or soft areas must be removed and replaced with structural fill.

Fill material and aggregates in support of the pavement section must be compacted to no less than 95 percent of the maximum dry density as determined by ASTM D698 for flexible pavements and by ASTM D1557 for rigid pavements. If a material placed as a pavement section component cannot be tested by usual compaction testing methods, then compaction of that material must be approved by observed proof rolling. Minor deflections from proof rolling for flexible pavements are allowable. Deflections from proof rolling of rigid pavement support courses should not be visually detectable.

Atlas recommends that rigid concrete pavement be provided for heavy garbage receptacles. This will eliminate damage caused by the considerable loading transferred through the small steel wheels onto asphaltic concrete. Rigid concrete pavement should consist of Portland Cement Concrete Pavement (PCCP) generally adhering to ITD specifications for Urban Concrete. PCCP should be 6 inches thick on a 4-inch drainage fill course (see **Floor Slab-on-Grade** section), and should be reinforced with welded wire fabric. Control joints must be on 12-foot centers or less.

9. CONSTRUCTION CONSIDERATIONS

Recommendations in this report are based upon structural elements of the project being founded on competent, native silty sand sediments or compacted structural fill. Structural areas should be stripped to an elevation that exposes these soil types.

9.1 Earthwork

Excessively organic soils, deleterious materials, or disturbed soils generally undergo high volume changes when subjected to loads, which is detrimental to subgrade behavior in the area of pavements, floor slabs, structural fills, and foundations. Brush and thick grasses with associated root systems were noted at the time of our investigation. It is recommended that organic or disturbed soils, if encountered, be removed to depths of 1 foot (minimum), and wasted or stockpiled for later use. Stripping depths should be adjusted in the field to assure that the entire root zone or disturbed zone or topsoil are removed prior to placement and compaction of structural fill materials. Exact removal depths should be determined during grading operations by Atlas personnel, and should be based upon subgrade soil type, composition, and firmness or soil stability.

If underground storage tanks, underground utilities, wells, or septic systems are discovered during construction activities, they must be decommissioned then removed or abandoned in accordance with governing Federal, State, and local agencies. Excavations developed as the result of such removal must be backfilled with structural fill materials as defined in the **Structural Fill** section.

Atlas should oversee subgrade conditions (i.e., moisture content) as well as placement and compaction of new fill (if required) after native soils are excavated to design grade. Recommendations for structural fill presented in this report can be used to minimize volume changes and differential settlements that are detrimental to the behavior of footings, pavements, and floor slabs. Sufficient density tests should be performed to properly monitor compaction. For structural fill beneath building structures, one in-place density test per lift for every 5,000 square feet is recommended. In parking and driveway areas, this can be decreased to one test per lift for every 10,000 square feet.

9.2 Dry Weather

If construction is to be conducted during dry seasonal conditions, many problems associated with soft soils may be avoided. However, some rutting of subgrade soils may be induced by shallow groundwater conditions related to springtime runoff or irrigation activities during late summer through early fall. Solutions to problems associated with soft subgrade soils are outlined in the **Soft Subgrade Soils** section. Problems may also arise because of lack of moisture in native and fill soils at time of placement. This will require the addition of water to achieve near-optimum moisture levels. Low-cohesion soils exposed in excavations may become friable, increasing chances of sloughing or caving. Measures to control excessive dust should be considered as part of the overall health and safety management plan.

9.3 Wet Weather

If construction is to be conducted during wet seasonal conditions (commonly from mid-November through May), problems associated with soft soils must be considered as part of the construction plan. During this time of year, fine-grained soils such as silts and clays will become unstable with increased moisture content, and eventually deform or rut. Additionally, constant low temperatures reduce the possibility of drying soils to near optimum conditions.

9.4 Soft Subgrade Soils

Shallow fine-grained subgrade soils that are high in moisture content should be expected to pump and rut under construction traffic. During periods of wet weather, construction may become very difficult if not impossible. The following recommendations and options have been included for dealing with soft subgrade conditions:

- Track-mounted vehicles should be used to strip the subgrade of root matter and other deleterious debris. Heavy rubber-tired equipment should be prohibited from operating directly on the native subgrade and areas in which structural fill materials have been placed. Construction traffic should be restricted to designated roadways that do not cross, or cross on a limited basis, proposed roadway or parking areas.

- Soft areas can be over-excavated and replaced with granular structural fill.
- Construction roadways on soft subgrade soils should consist of a minimum 2-foot thickness of large cobbles of 4 to 6 inches in diameter with sufficient sand and fines to fill voids. Construction entrances should consist of a 6-inch thickness of clean, 2-inch minimum, angular drain-rock and must be a minimum of 10 feet wide and 30 to 50 feet long. During the construction process, top dressing of the entrance may be required for maintenance.
- Scarification and aeration of subgrade soils can be employed to reduce the moisture content of wet subgrade soils. After stripping is complete, the exposed subgrade should be ripped or disked to a depth of 1½ feet and allowed to air dry for 2 to 4 weeks. Further disking should be performed on a weekly basis to aid the aeration process.
- Alternative soil stabilization methods include use of geotextiles, lime, and cement stabilization. Atlas is available to provide recommendations and guidelines at your request.

9.5 Frozen Subgrade Soils

Prior to placement of structural fill materials or foundation elements, frozen subgrade soils must either be allowed to thaw or be stripped to depths that expose non-frozen soils and wasted or stockpiled for later use. Stockpiled materials must be allowed to thaw and return to near-optimal conditions prior to use as structural fill.

The onsite, shallow silty soils are susceptible to frost heave during freezing temperatures. For exterior flatwork and other structural elements, adequate drainage away from subgrades is critical. Compaction and use of structural fill will also help to mitigate the potential for frost heave. Complete removal of frost susceptible soils for the full frost depth, followed by replacement with a non-frost susceptible structural fill, can also be used to mitigate the potential for frost heave. Atlas is available to provide further guidance/assistance upon request.

9.6 Structural Fill

Soils recommended for use as structural fill are those classified as GW, GP, SW, and SP in accordance with the Unified Soil Classification System (USCS) (ASTM D2487). Use of silty soils (USCS designation of GM, SM, and ML) as structural fill may be acceptable. However, use of silty soils (GM, SM, and ML) as structural fill below footings is prohibited. These materials require very high moisture contents for compaction and require a long time to dry out if natural moisture contents are too high and may also be susceptible to frost heave under certain conditions. Therefore, these materials can be quite difficult to work with as moisture content, lift thickness, and compactive effort becomes difficult to control. If silty soil is used for structural fill, lift thicknesses should not exceed 6 inches (loose), and fill material moisture must be closely monitored at both the working elevation and the elevations of materials already placed. Following placement, silty soils must be protected from degradation resulting from construction traffic or subsequent construction.

Recommended granular structural fill materials, those classified as GW, GP, SW, and SP, should consist of a 6-inch minus select, clean, granular soil with no more than 50 percent oversize (greater than ¾-inch) material and no more than 12 percent fines (passing No. 200 sieve). These fill materials should be placed in layers not to exceed 12 inches in loose thickness. Prior to placement of structural fill materials, surfaces must be prepared as outlined in the **Construction Considerations** section. Structural fill material should be moisture-conditioned to achieve optimum moisture content prior to compaction. For structural fill below footings, areas of compacted backfill must extend outside the perimeter of the footings for a distance equal to the thickness of fill between the bottom of foundation and underlying soils, or 5 feet, whichever is less. All fill materials must be monitored during placement and tested to confirm compaction requirements, outlined below, have been achieved.

Each layer of structural fill must be compacted, as outlined below:

- Below Structures and Rigid Pavements: A minimum of 95 percent of the maximum dry density as determined by ASTM D1557.
- Below Flexible Pavements: A minimum of 92 percent of the maximum dry density as determined by ASTM D1557 or 95 percent of the maximum dry density as determined by ASTM D698.

The ASTM D1557 test method must be used for samples containing up to 40 percent oversize (greater than ¾-inch) particles. If material contains more than 40 percent but less than 50 percent oversize particles, compaction of fill must be confirmed by proof rolling each lift with a 10-ton vibratory roller (or equivalent) until the maximum density has been achieved. Density testing must be performed after each proof rolling pass until the in-place density test results indicate a drop (or no increase) in the dry density, defined as maximum density or "break over" point. The number of required passes should be used as the requirements on the remainder of fill placement. Material should contain sufficient fines to fill void spaces, and must not contain more than 50 percent oversize particles.

9.7 Backfill of Walls

Backfill materials must conform to the requirements of structural fill, as defined in this report. For wall heights greater than 2.5 feet, the maximum material size should not exceed 4 inches in diameter. Placing oversized material against rigid surfaces interferes with proper compaction, and can induce excessive point loads on walls. Backfill shall not commence until the wall has gained sufficient strength to resist placement and compaction forces. Further, retaining walls above 2.5 feet in height shall be backfilled in a manner that will limit the potential for damage from compaction methods and/or equipment. It is recommended that only small hand-operated compaction equipment be used for compaction of backfill within a horizontal distance equal to the height of the wall, measured from the back face of the wall.

Backfill should be compacted in accordance with the specifications for structural fill, except in those areas where it is determined that future settlement is not a concern, such as planter areas. In nonstructural areas, backfill must be compacted to a firm and unyielding condition.

9.8 Excavations

Shallow excavations that do not exceed 4 feet in depth may be constructed with side slopes approaching vertical. Below this depth, it is recommended that slopes be constructed in accordance with Occupational Safety and Health Administration (OSHA) regulations, Section 1926, Subpart P. Based on these regulations, on-site soils are classified as type "C" soil, and as such, excavations within these soils should be constructed at a maximum slope of 1½ feet horizontal to 1 foot vertical (1½:1) for excavations up to 20 feet in height. Excavations in excess of 20 feet will require additional analysis. Note that these slope angles are considered stable for short-term conditions only, and will not be stable for long-term conditions.

During the subsurface exploration, test pit sidewalls generally exhibited little indication of collapse. For deep excavations, native granular sediments and fill materials cannot be expected to remain in position. These materials are prone to failure and may collapse, thereby undermining upper soil layers. This is especially true when excavations approach depths near the water table. Care must be taken to ensure that excavations are properly backfilled in accordance with procedures outlined in this report.

9.9 Groundwater Control

Groundwater was not encountered during the investigation but is anticipated to be below the depth of most construction. Excavations below the water table will require a dewatering program. Dewatering will be required prior to placement of fill materials. Placement of concrete can be accomplished through water by the use of a treme. It may be possible to discharge dewatering effluent to remote portions of the site, to a sump, or to a pit. This will essentially recycle effluent, thus eliminating the need to enter into agreements with local drainage authorities. Should the scope of the proposed project change, Atlas should be contacted to provide more detailed groundwater control measures.

Special precautions may be required for control of surface runoff and subsurface seepage. It is recommended that runoff be directed away from open excavations. Silty soils may become soft and pump if subjected to excessive traffic during time of surface runoff. Ponded water in construction areas should be drained through methods such as trenching, sloping, crowning grades, nightly smooth drum rolling, or installing a French drain system. Additionally, temporary or permanent driveway sections should be constructed if extended wet weather is forecasted.

10. GENERAL COMMENTS

Based on the subsurface conditions encountered during this investigation and available information regarding the proposed development, the site is adequate for the planned construction. When plans and specifications are complete, and if significant changes are made in the character or location of the proposed structure, consultation with Atlas must be arranged as supplementary recommendations may be required. Suitability of subgrade soils and compaction of structural fill materials must be verified by Atlas personnel prior to placement of structural elements. Additionally, monitoring and testing should be performed to verify that suitable materials are used for structural fill and that proper placement and compaction techniques are utilized.

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ATLAS

Appendix I WARRANTY AND LIMITING CONDITIONS

Atlas warrants that findings and conclusions contained herein have been formulated in accordance with generally accepted professional engineering practice in the fields of foundation engineering, soil mechanics, and engineering geology only for the site and project described in this report. These engineering methods have been developed to provide the client with information regarding apparent or potential engineering conditions relating to the site within the scope cited above and are necessarily limited to conditions observed at the time of the site visit and research. Field observations and research reported herein are considered sufficient in detail and scope to form a reasonable basis for the purposes cited above.

Limitations

Test pit depths were limited to a maximum depth of 10.4 feet bgs because of equipment limitations.

Exclusive Use

This report was prepared for exclusive use of the property owner(s), at the time of the report, and their retained design consultants ("Client"). Conclusions and recommendations presented in this report are based on the agreed-upon scope of work outlined in this report together with the Contract for Professional Services between the Client and Materials Testing and Inspection ("Consultant"). Use or misuse of this report, or reliance upon findings hereof, by parties other than the Client is at their own risk. Neither Client nor Consultant make representation of warranty to such other parties as to accuracy or completeness of this report or suitability of its use by such other parties for purposes whatsoever, known or unknown, to Client or Consultant. Neither Client nor Consultant shall have liability to indemnify or hold harmless third parties for losses incurred by actual or purported use or misuse of this report. No other warranties are implied or expressed.

Report Recommendations are Limited and Subject to Misinterpretation

There is a distinct possibility that conditions may exist that could not be identified within the scope of the investigation or that were not apparent during our site investigation. Findings of this report are limited to data collected from noted explorations advanced and do not account for unidentified fill zones, unsuitable soil types or conditions, and variability in soil moisture and groundwater conditions. To avoid possible misinterpretations of findings, conclusions, and implications of this report, Atlas should be retained to explain the report contents to other design professionals as well as construction professionals.

Since actual subsurface conditions on the site can only be verified by earthwork, note that construction recommendations are based on general assumptions from selective observations and selective field exploratory sampling. Upon commencement of construction, such conditions may be identified that require corrective actions, and these required corrective actions may impact the project budget. Therefore, construction recommendations in this report should be considered

preliminary, and Atlas should be retained to observe actual subsurface conditions during earthwork construction activities to provide additional construction recommendations as needed.

Since geotechnical reports are subject to misinterpretation, **do not** separate the soil logs from the report. Rather, provide a copy of, or authorize for their use, the complete report to other design professionals or contractors. Locations of exploratory sites referenced within this report should be considered approximate locations only. For more accurate locations, services of a professional land surveyor are recommended.

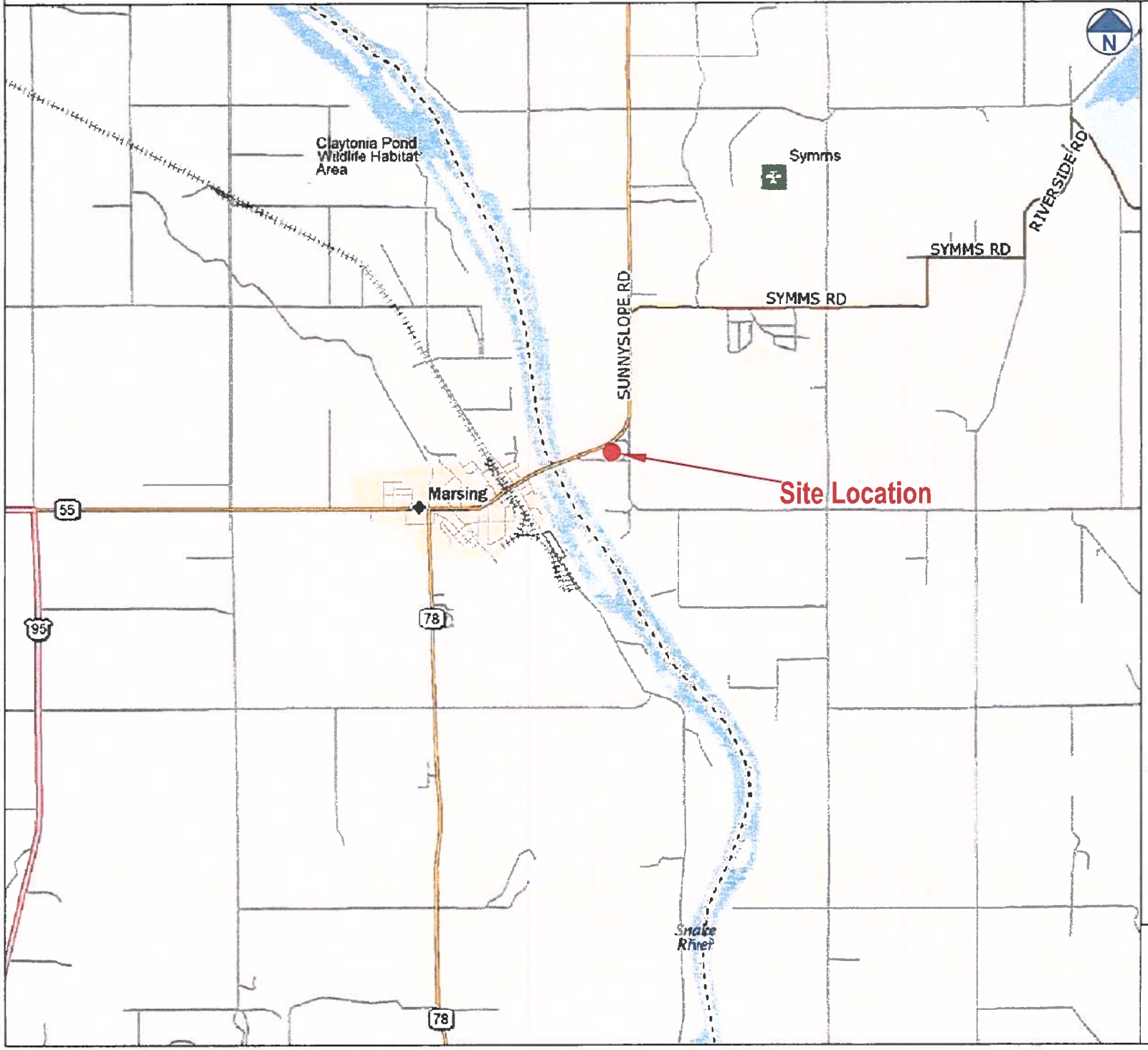
This report is also limited to information available at the time it was prepared. In the event additional information is provided to Atlas following publication of our report, it will be forwarded to the client for evaluation in the form received.

Environmental Concerns

Comments in this report concerning either onsite conditions or observations, including soil appearances and odors, are provided as general information. These comments are not intended to describe, quantify, or evaluate environmental concerns or situations. Since personnel, skills, procedures, standards, and equipment differ, a geotechnical investigation report is not intended to substitute for a geoenvironmental investigation or a Phase II/III Environmental Site Assessment. If environmental services are needed, Atlas can provide, via a separate contract, those personnel who are trained to investigate and delineate soil and water contamination.

Vicinity Map

Figure 1



MAP NOTES:

- Delorme Street Atlas
- Not to Scale

LEGEND

Approximate Site Location

Proposed Commercial Development
SEC of Highway 55 & Churruca Lane
Caldwell, ID

Modified from DeLorme by: JBS
December 21, 2020
Drawing: B202034g

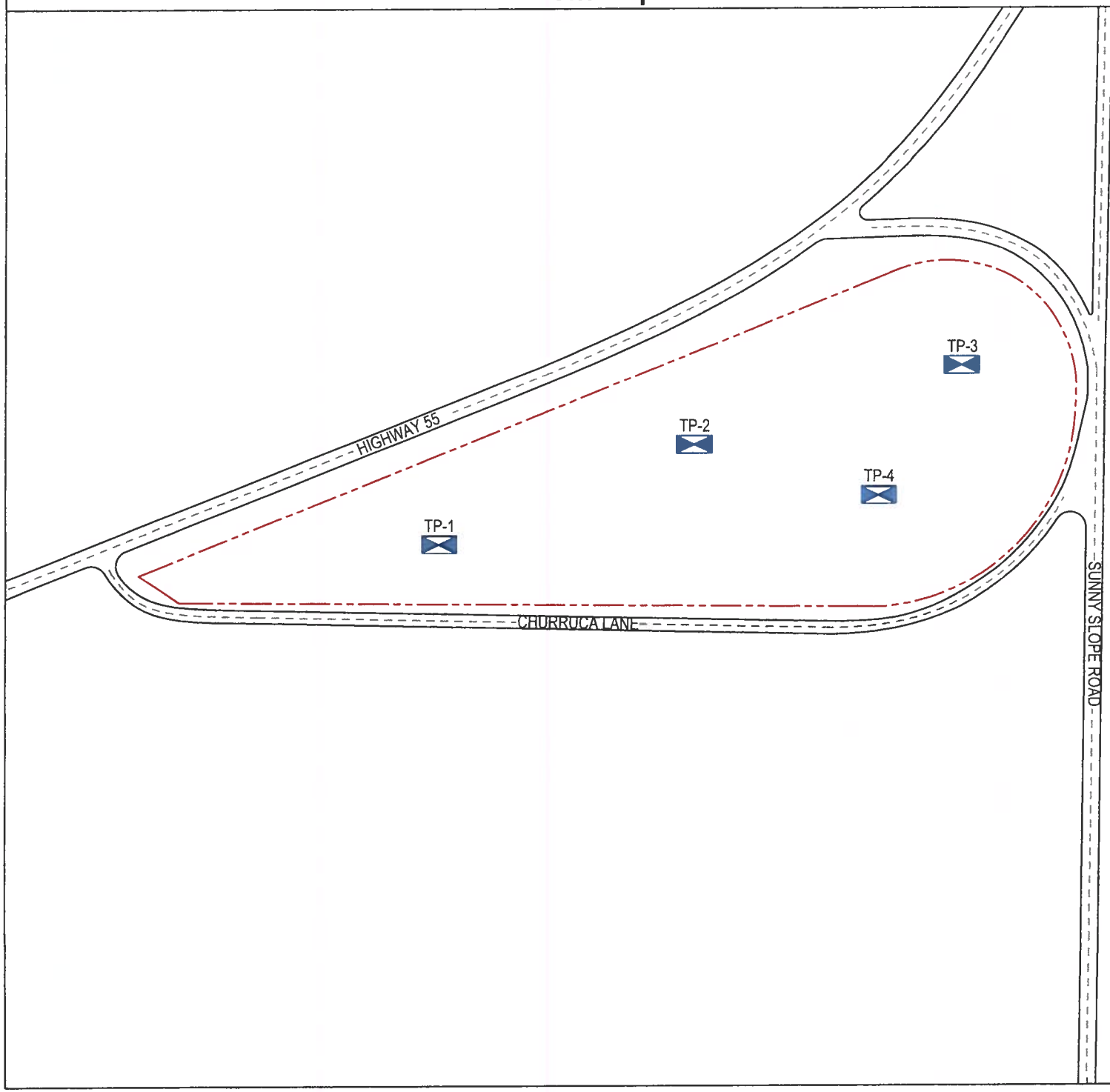
ATLAS

2791 S. Victory View Way
Boise, ID 83709

Phone: (208) 376-4748
Fax: (208) 322-6515
Web: oneatlas.com

Site Map

Figure 2



NOTES:

- Not to Scale

LEGEND

Approximate Site Boundary

Approximate Atlas Test Pit Location

Proposed Commercial Development

SEC of Highway 55 & Churruca Lane
Caldwell, ID

Drawn by: JBS
December 21, 2020
Drawing: B202034g

ATLAS

2791 S. Victory View Way
Boise, ID 83709

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Appendix IV GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-1
Date Advanced: December 10, 2020
Excavated by: Client Supplied Excavator
Logged by: Jacob Schlador, PE

Latitude: 43.54911
Longitude: -116.79555
Depth to Water Table: Not Encountered
Total Depth: 10.4 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-2.9	Silt with Sand (ML): Brown to light brown, dry, stiff to very stiff, with fine-grained sand. --Organics to a depth of 1.3 feet bgs.			1.5-2.5	
2.9-10.4	Silty Sand (SM): Light brown, dry to moist, medium dense, with fine to medium-grained sand.	GS	3.0-3.5		A

Notes: See Site Map for test pit location.

Lab Test ID	Moisture (%)	LL	PI	Sieve Analysis (% Passing)				
				#4	#10	#40	#100	#200
A	9.7	NP	NP	100	100	99	77	41.2

ATLAS

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-2
Date Advanced: December 10, 2020
Excavated by: Client Supplied Excavator
Logged by: Jacob Schlador, PE

Latitude: 43.54952
Longitude: -116.79472
Depth to Water Table: Not Encountered
Total Depth: 10.1 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-10.1	Silty Sand with Gravel Fill (SM-FILL): Brown to light brown, dry, medium dense to dense, with fine to coarse-grained sand, fine to coarse gravel, and intermittent cementation debris. --Organics to a depth of 1.1 feet bgs.				

Notes: See Site Map for test pit location.

ATLAS

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-3
Date Advanced: December 10, 2020
Excavated by: Client Supplied Excavator
Logged by: Jacob Schlador, PE

Latitude: 43.54979
Longitude: -116.79314
Depth to Water Table: Not Encountered
Total Depth: 9.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-9.9	Silty Sand with Gravel Fill (SM-FILL): Brown to light brown, dry, medium dense to dense, with fine to coarse-grained sand, fine to coarse gravel, and intermittent 2 to 3 foot boulders. --Organics to a depth of 0.8 foot bgs.				

Notes: See Site Map for test pit location.

ATLAS

GEOTECHNICAL INVESTIGATION TEST PIT LOG

Test Pit Log #: TP-4
Date Advanced: December 10, 2020
Excavated by: Client Supplied Excavator
Logged by: Jacob Schlador, PE

Latitude: 43.54936
Longitude: -116.79239
Depth to Water Table: Not Encountered
Total Depth: 8.9 feet bgs

Depth (feet bgs)	Field Description and USCS Soil and Sediment Classification	Sample Type	Sample Depth (feet bgs)	Qp	Lab Test ID
0.0-8.9	Silty Sand (SM): Brown to light brown, dry, medium dense to dense, with fine to medium-grained sand. --Organics to a depth of 1.2 feet bgs. --Increase in sand content at a depth of 6.3 feet bgs.				

Notes: See Site Map for test pit location.

ATLAS

Appendix V GEOTECHNICAL GENERAL NOTES

Unified Soil Classification System			
Major Divisions		**Symbol**	**Soil Descriptions**
Coarse-Grained Soils < 50% passes No.200 sieve	Gravel & Gravelly Soils < 50% coarse	GW	Well-graded gravels; gravel/sand mixtures with little or no fines
		GP	Poorly-graded gravels; gravel/sand mixtures with little or no fines
		GM	Silty gravels; poorly-graded gravel/sand/silt mixtures
		GC	Clayey gravels; poorly-graded gravel/sand/clay mixtures
	Sand & Sandy Soils > 50% coarse fraction	SW	Well-graded sands; gravelly sands with little or no fines
		SP	Poorly-graded sands; gravelly sands with little or no fines
		SM	Silty sands; poorly-graded sand/gravel/silt mixtures
		SC	Clayey sands; poorly-graded sand/gravel/clay mixtures
Fine-Grained Soils > 50% passes No.200 sieve	Silts & Clays LL < 50	ML	Inorganic silts; sandy, gravelly or clayey silts
		CL	Lean clays; inorganic, gravelly, sandy, or silty, low to medium-plasticity clays
		OL	Organic, low-plasticity clays and silts
	Silts & Clays LL > 50	MH	Inorganic, elastic silts; sandy, gravelly or clayey elastic silts
		CH	Fat clays; high-plasticity, inorganic clays
		OH	Organic, medium to high-plasticity clays and silts
Highly Organic Soils		PT	Peat, humus, hydric soils with high organic content

Relative Density and Consistency Classification	
Coarse-Grained Soils	**SPT Blow Counts (N)**
Very Loose:	< 4
Loose:	4-10
Medium Dense:	10-30
Dense:	30-50
Very Dense:	> 50
Fine-Grained Soils	**SPT Blow Counts (N)**
Very Soft:	< 2
Soft:	2-4
Medium Stiff:	4-8
Stiff:	8-15
Very Stiff:	15-30
Hard:	> 30

Moisture Content and Cementation Classification	
Description	**Field Test**
Dry	Absence of moisture, dry to touch
Slightly Moist	Damp, but no visible moisture
Moist	Visible moisture
Wet	Visible free water
Saturated	Soil is usually below water table
Description	**Field Test**
Weak	Crumbles or breaks with handling or slight finger pressure
Moderate	Crumbles or breaks with considerable finger pressure
Strong	Will not crumble or break with finger pressure

Particle Size	
Boulders:	> 12 in.
Cobbles:	12 to 3 in.
Gravel:	3 in. to 5 mm
Coarse-Grained Sand:	5 to 0.6 mm
Medium-Grained Sand:	0.6 to 0.2 mm
Fine-Grained Sand:	0.2 to 0.075 mm
Silts:	0.075 to 0.005 mm
Clays:	< 0.005 mm

Acronym List	
GS	grab sample
LL	Liquid Limit
M	moisture content
NP	non-plastic
PI	Plasticity Index
Q_p	penetrometer value, unconfined compressive strength, tsf
V	vane value, ultimate shearing strength, tsf

Appendix VI AASHTO PAVEMENT DESIGN

Pavement Section Design Location: Proposed Commercial Development, Light Duty

Average Daily Traffic Count:	300	All Lanes & Both Directions
Design Life:	20	Years
Percent of Traffic in Design Lane:	50%	
Terminal Seviceability Index (Pt):	2.5	
Level of Reliability:	95	
Subgrade CBR Value:	5	**Subgrade Mr:** 7,500

Calculation of Design-18 kip ESALs

	Daily Traffic	Growth Rate	Load Factors	Design ESALs
Passenger Cars:	80	2.0%	0.0008	568
Buses:	0	2.0%	0.6806	0
Panel & Pickup Trucks:	64	2.0%	0.0122	6,925
2-Axle, 6-Tire Trucks:	5	2.0%	0.1890	8,381
Emergency Vehicles:	1.0	2.0%	4.4800	39,731
Dump Trucks:	0	2.0%	3.6300	0
Tractor Semi Trailer Trucks:	0	2.0%	2.3719	0
Double Trailer Trucks	0	2.0%	2.3187	0
Heavy Tractor Trailer Combo Trucks:	0	2.0%	2.9760	0
Average Daily Traffic in Design Lane:	150			

Total Design Life 18-kip ESALs:	55,604
Actual Log (ESALs):	4.745
Trial SN:	2.30
Trial Log (ESALs):	4.757
Pavement Section Design SN:	2.41

	Design Depth Inches	Structural Coefficient	Drainage Coefficient
Asphaltic Concrete:	2.50	0.42	n/a
Asphalt-Treated Base:	0.00	0.25	n/a
Cement-Treated Base:	0.00	0.17	n/a
Crushed Aggregate Base:	4.00	0.14	1.0
Subbase:	8.00	0.10	1.0
Special Aggregate Subgrade:	0.00	0.09	0.9

AASHTO PAVEMENT DESIGN

Pavement Section Design Location: Proposed Commercial Development, Heavy Duty

Average Daily Traffic Count:	300	All Lanes & Both Directions
Design Life:	20	Years
Percent of Traffic in Design Lane:	50%	
Terminal Seviceability Index (Pt):	2.5	
Level of Reliability:	95	
Subgrade CBR Value:	5	**Subgrade Mr:** 7,500

Calculation of Design-18 kip ESALs

	Daily Traffic	Growth Rate	Load Factors	Design ESALs
Passenger Cars:	75	2.0%	0.0008	532
Buses:	1	2.0%	0.6806	6,036
Panel & Pickup Trucks:	55	2.0%	0.0122	5,951
2-Axle, 6-Tire Trucks:	15	2.0%	0.1890	25,142
Emergency Vehicles:	1.0	2.0%	4.4800	39,731
Dump Trucks:	1	2.0%	3.6300	32,193
Tractor Semi Trailer Trucks:	1	2.0%	2.3719	21,035
Double Trailer Trucks	1	2.0%	2.3187	20,563
Heavy Tractor Trailer Combo Trucks:	0	2.0%	2.9760	0
Average Daily Traffic in Design Lane:	150			

Total Design Life 18-kip ESALs:	151,184
Actual Log (ESALs):	5.180
Trial SN:	2.71
Trial Log (ESALs):	5.185
Pavement Section Design SN:	2.82

	Design Depth Inches	Structural Coefficient	Drainage Coefficient
Asphaltic Concrete:	3.00	0.42	n/a
Asphalt-Treated Base:	0.00	0.25	n/a
Cement-Treated Base:	0.00	0.17	n/a
Crushed Aggregate Base:	4.00	0.14	1.0
Subbase:	10.00	0.10	1.0
Special Aggregate Subgrade:	0.00	0.09	0.9

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are <u>not</u> final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals' plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for information purposes only.* To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are <u>Not</u> Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer's services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will <u>not</u> of itself be sufficient to prevent moisture infiltration. Confront the risk of moisture infiltration*** by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are <u>not</u> building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

From: Ken Couch
Sent: Tuesday, June 2, 2020 5:21 PM
To: William Werhane
Cc: Erika Bowen; Sarah Arjona
Subject: RE: [EXTERNAL] Off ramp to parcel R33590012b

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Hi Bill!

I have attached a Snip-it of the parcels to verify I am looking at the correct site. I have also attached a copy of the permit application, a copy of the ITD standard drawing for approaches, a copy of the excavation and paving requirements, and a list of requirements for the Traffic Control Plan. Once the application is completed the property owner or their authorized representative will need to sign the application it and submit it along with the following:

1. Copy of the latest deed for the parcel.
2. If parcel is split you will need to provide a recorded cross access or access easement documentation for all parcels showing they will be utilizing the requested access point.
3. Site plan for the full site.
4. Civil drawings for the approach.
5. Photos looking each direction away from the proposed approach as if you were a driver exiting the approach.
6. $100 non-refundable application fee (Payable by phone at 208-332-7187 between 8 am and 3 pm Monday through Friday, $1.50 electronic payment fee).
7. Traffic Impact Study (TIS) to include a turn lane warrant. Please contact ITD for scope of work for the TIS.
8. You will need to submit a Traffic Control Plan designed by a certified Traffic Control Supervisor (must include signature, certification number, and contact information) or designed and stamped by an Engineer licensed in Idaho. This may be done at any point prior to beginning any work within the ITD right-of-way. No work is allowed within the ITD right-of-way without an approved traffic control plan.

The proposed uses will generate enough trip to require the installation of a right turn lane. Total length of the right turn lane will be 385' and must be completely within the parcel limits. Property dedication may also be required.

All documents may be submitted electronically.

Once the application is completed and signed by the property owner it can then be submitted by email.

It will likely take about 30 days to process your application once we have all the correct documents. Please make sure the application is signed by the property owner or an authorized

representative. If it is signed by an authorized representative we will need a legal document from the owner certifying that the individual has the right to represent the owner.

Please be sure that all work within the Right-of Way is designed and constructed to meet current ITD Standards and Specifications.

If you have any questions please feel free to contact me.

Thanks!

Ken Couch
Permits Coordinator
Idaho Transportation Department
District 3
208-332-7190 Office
Ken.Couch@itd.idaho.gov

From: William Werhane <wmwerhanewys@gmail.com>
Sent: Monday, June 1, 2020 3:01 PM
To: Ken Couch <Ken.Couch@itd.idaho.gov>
Subject: [EXTERNAL] Off ramp to parcel R33590012b